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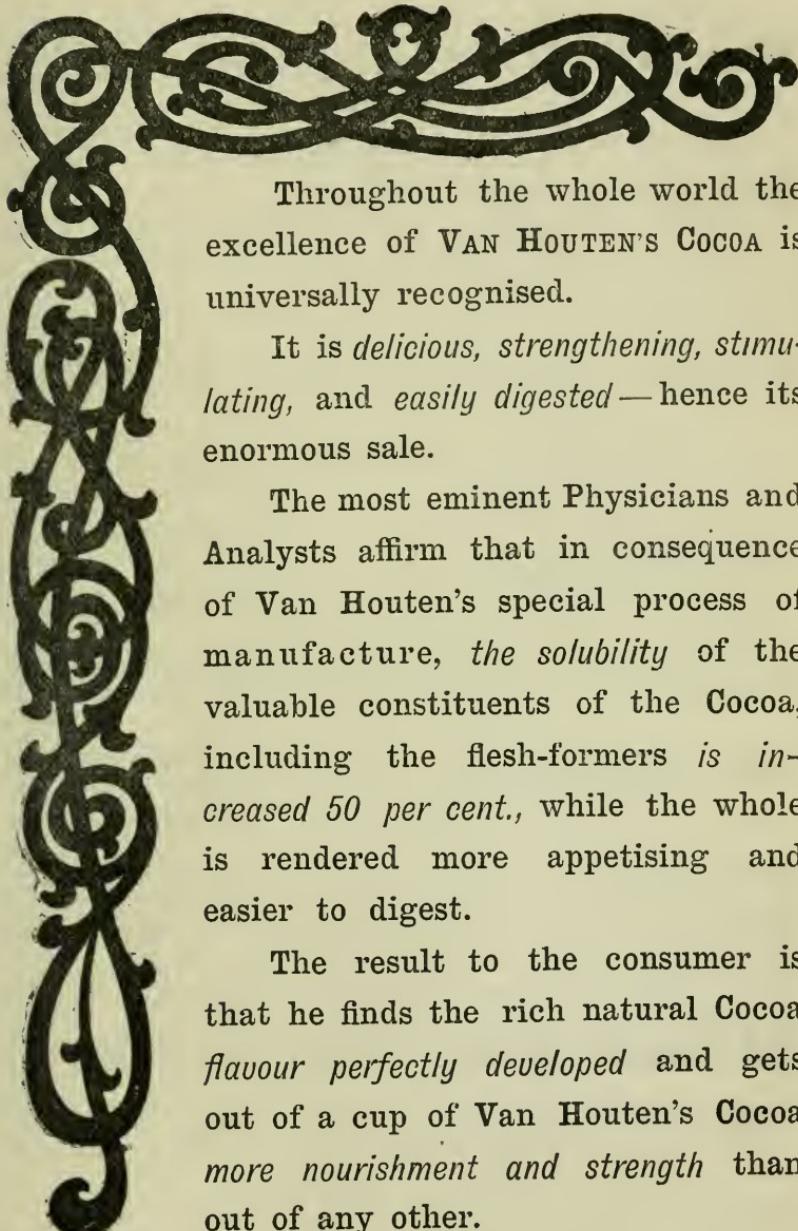
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PART I. ORIGINAL COMMUNICATIONS.

ART. I.—*On the Dissemination of Micro-organisms, and on the Best Method of Destroying Germ Emanations from Sewer Gas.*^a By CHARLES R. C. TICHBORNE, F.C.S., F.I.C.; Dip. in Pub. Health, R.C.S.I., &c.

THERE are two characters of germ contagion, which may perhaps be best illustrated in the diseases of scarlatina and enteric fever.

In scarlatina we know that the contagion is largely conveyed by the desquamation.

In enteric fever the germs which are carried by sewer gas are supposed, with considerable force of evidence, to be a fertile source of spreading the disease.

In scarlatina we assume that the "Raft Theory," as Tyndall called it, plays an important part, whilst in the latter we must assume that the contagion is often carried with the vapours which emanate from the drains.

In my present communication I do not propose to deal at any length with the subject of the transmission of germs by the raft theory. It is fairly understood by most physi-cists and bacteriologists, but I may as well concisely describe it as most scientists understand it. Now we assume that the ordinary atmosphere, let us say at the sea

^a Read before the State Medicine Section of the Royal Academy of Medicine in Ireland, on Friday, April 30th, 1897.

level, is largely contaminated with a visible and ponderable matter which we term atmospheric dust. This atmospheric dust is found largely present in our homes, and also in the streets of populous towns. It consists of ponderable atoms, which at an altitude of a few feet almost entirely consist of organic matter. This fact was conclusively demonstrated by Tyndall's beautiful experiments in producing what he called optical vacuums by the combustion of the organic matter. The coarser particles of this atmospheric dust act as a kind of floating raft, and carry on their surface the finer structures of life. In the case of such a disease as scarlatina we can easily see how this raft theory plays an important part in the dissemination of the desquamation.

Even the smallest germs that our microscopes have yet revealed have a certain weight. This fact is shown by the absence of germs at high altitudes—such as Mont Blanc, or in a very still atmosphere, such as is found in the vaults of St. Michan's Church. I demonstrated this as far back as 1870, in an "Afternoon Lecture," delivered at the Royal Dublin Society. I showed that flasks placed all night in the vaults of St. Michan's Church were, when sealed next morning, optically empty, or free from atmospheric dust, and were therefore free from germs. We get in these vaults exactly the same result that we should find on the top of Mont Blanc. I believe this sterility of the atmosphere of St. Michan's Church has been the subject matter of one, if not more papers read before this Academy. I am sure it had escaped the author's observation that the ground had already been "prospected."

It is worthy of note that the greater part of practical bacteriology is now worked out by an observation which, I think, originated with Tyndall—that cotton wool was a perfect filter as regards this atmospheric dust, and that it not only acted upon the coarser particles but separated the finer micro-organisms.

I may be excused for still further referring to my own researches in this direction, mention of which will be found in the later editions of "Parker's Hygiene," by De Chaumont. I was able to demonstrate that even the dust at the top of Nelson's Pillar contained over 29 per cent. of organic matter and that it was capable of setting up the lactic fermentation

in a neutral solution of sugar of milk. Here is a solution of sugar of milk and lime, which although sterilised, when brought into an ordinary room containing atmospheric dust has fermented, and become solid by the formation of calcium lactate. The atmosphere at every yard that we rise from the ground becomes freer from the ponderous earthy constituents, but richer in germs. Of course, we at last come to an altitude where even the micro-organisms become scarce, and to such regions as the high altitudes of Switzerland where the germ is unknown. Even on the Mer de Glace the germs may be said to be absent.

So much for the raft theory, which will account for the dissemination of any germs, providing they have arrived at the dry condition, or that they can be attached to a dry particle. What can be more easy to conceive than the spreading of scarlatina by a process such as this. It is almost self-evident.

But there is another mode by which preventable disease is propagated which has never, to my mind, presented such a lucid explanation as regards its propagation. I refer to the theory which supposes that a certain germ, let us say like that accompanying enteric fever, cholera, or the poison of yellow fever, is capable of acting as a poison when evolved in sewer gas.

We have an organism which, when carried in water or brought mechanically to a receptive surface, is capable of producing disease, and yet we also find that it is capable of rising in such a vapour as in sewer gas. I use the term "vapour" not in the vulgar sense, which assumes a non-permanent gas capable of condensation, but in the sense that means anything flying, or escaping off. In this sense atmospheric dust is volatile.

Two special diseases are supposed to arise from the air of sewers or faecal emanations—typhoid fever and diarrhoea. Yet if these diseases are caused by bacilli how are they volatilised, for however minute, these bacilli are still organic structures developed in the liquid faecal matter. Although a germ is so small that our finest balance will not weigh it, and although it may only be $\frac{1}{1000}$ ths of a millimetre in length we might as reasonably conceive that the coarser microscopic life, such as rotatoria or entomostraca, which we can

almost see with our eyes, would be volatilised as a vapour as to conceive that pathogenic microbes would be so transmitted. Prof. Frankland has shown that liquid sewage matter is not likely to be scattered into the air, except by gas generated in it. He experimented with lithia, a chemical substance not volatile, but which could be easily detected by the spectroscope, and might be said to represent micro-organisms. He found that no ordinary agitation of the sewer water would produce indications of lithia in the air, but that directly gas began to be generated in the sewage, by decomposition, the bursting of the gas bubbles carried lithia into the air.^a

Now, I think here is the clue to the dissemination of microbes, but not exactly in the direction which he indicated. Such a condition of sewage—*i.e.*, in active fermentation—is hardly conceivable in a general sense in the better constructed drains found connected with houses of a good class—the houses, in fact, where typhoid seems to luxuriate.

We must suppose, however, in a system of town sewage, certain spots in the mains, where, from the Frankland cause, the microbes are scattered into the air during fermentation, or let us say violent concussions breaking the sewage into spray. And then comes the question—how are they disseminated through the whole area of the air space of the system of drains? I can easily conceive that they are there carried by a condensed vapour, exactly represented by ordinary dew at certain hours of the night, just as we see the rising vapour settling as dew in a valley. I believe that the temperature of the water laden vapour of the sewer is lowered by meeting with the layer of cold night air through the open traps which determines a dew point in the sewers themselves. I find, from actual experiment that the temperature of the sewer water as it flows from the large sewers, or the temperature of the gas in the mains, is generally 2 or 3 degrees above the temperature of the night air. The gas mains bear a somewhat similar position underground to the sewers, and give a very good idea of this variation of temperature. A variation of as much as 10 to 15 degrees may be observed. Even a sudden rise

^a Proceedings of the Royal Society, 1879.

in the barometer will just determine the deposition of the liquid portions of the gas in the mains, and in the same manner will also determine, even more energetically, a dew line in the sewers. Each particle of dew becomes a raft which will carry microbes upon its surface, perhaps for miles, as long as this "dew" condition lasts; and as the sun's warmth dissipates the morning dew the water raft disappears, leaving the microbes suspended in mid-air—or, suppose that if the sewer dew is carried into a warm shaft connected with a dwelling-house, is not the assumption apparent that again we have the water rafts converted into permanent gas, whilst the now dry germs float about seeking whom they may devour?

I will just conclude by a few remarks upon sewage disinfection from this point of view. The disinfectants employed in sewage purification can hardly be viewed as actual germicides. The modes in which they are necessarily used create such an amount of dilution that they can be viewed only as retarders of the development of microbes. It is, no doubt, chiefly from this reason that they are not more extensively used in sewage purification. The return in results, as regards the prevention of diseases, is not commensurate with the great expense of oxidisers, such as permanganates and hypochlorites. They are not in favour, because unless they are used in overwhelming quantities they are worse than useless. They destroy myriads of microbes, but allow myriads to escape—and to the remainder they only seem to add fuel to the fire. It is true that at the pumping stations in London, manganate of sodium is used, or was used, but in such a case it is merely employed as a deodoriser at the end of the process, whilst the supernatant fluid is poured into the river.

From the reason of cheapness crude carbolic acid (which may be considered to owe its virtue to phenol, cresylic acid, and a little naphthalene) is extensively used. Although not a very decided germicide, phenol still holds an important place as one of the most valuable retarders of germ development. Naphthalene is still more powerful, and may be looked upon as a germicide proper. Although very cheap, it has one objection, namely, its great insolubility.

I have here a fluid which I have used with some success

for years in controlling or instantly stopping germ development, for which there are many occasions when the use of mercuric chloride is inadmissible.

It consists of:—

Crystallised Phenol	1 part.
Camphor	3 parts.
Naphthalene	$\frac{1}{2}$ part.
Coloured with rosaniline carbolate.			

It will be observed that though these are all solids they form a fluid on rubbing together. One drop of this liquid will instantly arrest any tube of microbe culture in gelatine at a given point, and may be used with advantage to place on record comparative experiments with microbe cultures.

In such an experiment I have found it advantageous to use a little stiffer nutrient gelatine than that given in Crookshank's work. I increase the formula given there from 100 grammes of gelatine to 120 grammes (*vide Crookshank's Manual of Bacteriology*, 3rd edition, p. 83).

Now it is a similar preparation to the above preservative which I should propose for sewage purification, with one modification which I consider invaluable. Crude carbolic acid (phenol) is comparatively cheap, and naphthalene may be viewed as a waste product in the process of coal tar distillation. For the camphor I would substitute terebene, which may be looked upon almost as a liquid camphor. Where the sewers of a large city are being provided for, or where cost is a question of importance, the light oils of tar may be substituted.

Now I will describe the scientific theory, by which, I believe, this disinfectant can be made a trap for typhoid bacilli or germs of a like nature in sewer gas.

The principle involved consists in adding some liquid body which shall bring the specific gravity of the antiseptic below the gravity of the sewer water. When such a body is used the antiseptic fluid forms at once a fine pellicle of antiseptic material. All fluids that are volatilised or mechanically eliminated by the escape of gas must pass through the germicide layer. If carbolic acid or the crude phenol products are used by themselves, we find, in practice, that they immediately sink to the bottom of the flowing sewage which passes along over the top in a continuous stream of

untouched pollution. The crude products obtained from the distillation of coal tar are specially suited to this purpose. When coal tar is distilled in the first instance it is divided into two divisions—one is called “light coal tar oil,” and the other “heavy coal tar oil.” The first contains all the products which come over as long as they will float on water, and they are specially rich in the benzene, naphthalene and terebene series, all of which are powerful germicides. By substituting these oils for terebene we get an antiseptic fluid which immediately spreads on the surface of the sewage, leeking in the deleterious vapours, and at the same time passing downwards the heavier antiseptics, such as the phenols, through the sewage by the simple act of solution.

This can be illustrated by the following simple experiment. If we pass, by a pipette, a layer of carbolic acid into a shallow dish of water, and after standing some little time draw off some of the supernatant water, we shall find on testing it with a little bromine water, that it contains no carbolic acid. If, in a second experiment, we use such a mixture as I have specified, but which must have a specific gravity of .850 to .950, we shall find, on introducing it into the water with the pipette, that it immediately rises to the surface, and if we at once remove some of the water from the interior it gives, on testing with bromide water, a copious precipitate, showing that the carbolic acid has permeated at once, through the water which represents the sewage. We should further find, on examining this fluid, that the powerful antiseptic naphthalene had been carried with it.

I have endeavoured in the above experiments to show why, in many cases, the use of carbolic acid has been a practical failure as a sewage purifier, and to indicate that, in dealing with such contagions as are diffused through sewer gas, a principle should be adopted in the use of antiseptics. This principle has not, as far as I know, been openly enunciated—namely, that we must disinfect from the surface of the flowing sewage, and not from the bottom.

ART. II.—*The Report of the Vaccination Commission, 1896.*^a
By ALFRED E. BOYD, M.B., B.Ch., Univ. Dubl.

IN bringing the subject of the Vaccination Commission's Report before the Royal Academy of Medicine I do not do so with the idea of defending the practice of vaccination. Such a course would be mere waste of time in an audience composed of medical men, who, if they believe in anything, must believe in the usefulness of the practice.

In view, however, of the recommendations of the Commission, and as the subject will soon be brought before Parliament in order that the recommendations may be carried into effect, it is well that all interested in the public health should consider well the present state of the case.

What the provisions of the Bill to be introduced next Session may be we do not yet know, but it is certain that the "Anti-vaccinationist" Party will endeavour to do away with the principle of compulsory vaccination, which has been in force in England since 1850. The Report is a voluminous document of 220 pages, the result of seven years' work. During this time the Commission held 136 meetings, examined 187 witnesses, and investigated 6 epidemics.

The members of the Commission were appointed on the 29th of May, 1889, their names being as follows:—Baron Herschell, Sir James Paget, Sir Charles Dalrymple, Sir W. G. Hunter, Sir Edwin Galsworthy, Sir William Savory, Mr. Charles Bradlaugh, Dr. J. S. Bristowe, Mr. W. T. Collins, Mr. Dugdale, Dr. Michael Foster, Mr. Jonathan Hutchinson, Mr. J. A. Picton, Mr. Samuel Whitbread, and Mr. F. W. White. Of these Mr. Bradlaugh died soon after the appointment of the Commission, his place being taken by Mr. J. A. Bright. Sir William Savory and Dr. Bristowe died at a later period, and their places remained unfilled.

The scope of the inquiry was defined as follows:—

- (1.) The effect of vaccination in reducing the prevalence of and mortality from small-pox.
- (2.) What means other than vaccination can be used for diminishing the prevalence of small-pox, and how

^a Read before the Section of State Medicine in the Royal Academy of Medicine in Ireland, on Friday, April 30, 1897.

far such means could be relied on in place of vaccination.

- (3.) The objections made to vaccination on the ground of injurious effects alleged to result therefrom, and the nature and extent of any injurious effects which do in fact result.
- (4.) Whether any, and if so what, means should be adopted for preventing or lessening the ill effects, if any, resulting from vaccination; and whether, and if so by what means, vaccination with animal vaccine should be further facilitated as a part of public vaccination.
- (5.) Whether any alterations should be made in the arrangements and proceedings for securing the performance of vaccination, and, in particular, in the provisions of the Vaccination Acts with respect to prosecutions for non-compliance with the law.

Before going into the evidence regarding the effect of vaccination in reducing the prevalence of and mortality from small-pox it is well that we should briefly study the history of the disease and note its characters prior to the time of Jenner.

"A view very generally taken teaches that small-pox introduced from the East began to be common in Western Europe during the fifteenth century, though perhaps existing still earlier; that it increased during the sixteenth and seventeenth centuries, especially the latter, and that it was very prevalent during the eighteenth century" (Report, sec. 35).

Corfield states that "during the last century this disease killed on an average nearly half a million of people in Europe annually, and was severely epidemic about once in three years. In some years it caused half the deaths of children under ten years of age. It produced frightful disfigurements of the features, and caused from one-half to two-thirds of all the cases of blindness in Europe. In Iceland, in the year 1797, it caused a third of all the deaths in the island. Among the North American Indians it spread like 'a fire consuming the dry grass of the field, and persons who were not yet attacked by it slew themselves and

their families rather than face this terrible disorder.' It spared no age, no rank of life, and no country, nor was it deterred by any climate. As lately as 1772, Maitland speaks of 'the havoc made in great families not many months since by that mighty disease,' which seemed then to go forth like a destroying angel, subduing all before it. Six members of the family of William III. died of it, while he himself suffered severely from it, and was permanently marked by it. Dr. Guy points out that 'in the last ten years of the century it was more than one hundred times as fatal as diarrhoea and its allied diseases, six times as fatal as apoplexy, palsy, and sudden death taken together, and seven times as fatal as the measles. During the last century, in fact, it caused in England one death in every twelve from all causes, and in France one in every ten.' (*The Laws of Health*, W. H. Corfield, M.A.).

In the town of Ware, in Hertfordshire, in 1772, out of a population of 2,515 at the beginning of the epidemic, 1,601 had previously had small-pox, leaving 914 susceptible persons. Among these there were during the epidemic 612 cases with 72 deaths; leaving at the end of the epidemic 302 persons, who having escaped the attack are spoken of in the record as "to have the small-pox." This gives the proportion of those who had had small-pox before the epidemic as 64 per cent., while after the epidemic it was 82 per cent. of the population.

In Chester, with a population of nearly 15,000, 85 per cent. had had the disease before the epidemic of 1774, while after the epidemic the percentage was 93.

There is no reason to think that the condition of things in Ware or in Chester was exceptional; it may probably be taken as illustrative of the condition of things elsewhere. (secs. 47, 48.)

The practice of inoculation for the small-pox began definitely in England towards the end of the first quarter of the 18th century. The first clearly recorded case in England is that of the daughter of Lady Mary Montague, inoculated by Maitland in London in 1721. It was found that the attacks induced by inoculation were, as a rule, milder and very much less fatal than the attacks of the natural disease,

the fever and constitutional disturbance being less and of shorter duration, and the eruptive pustules much fewer in number. Received at first with enthusiasm, the practice of inoculation gradually dropped into disuse only to come into favour again at a later period ; and there can be no doubt that between the years 1770-1780 inoculation was widely practised in England, and to be so continued until the end of the century. Since the inoculated person was infectious, each case was a source of danger to those who, not protected by a previous attack, came into his company, and this danger was increased by the fact that the mild character of the inoculated disease in many cases permitted the patient to move about among his fellows (sec. 70).

Inoculation, therefore, while benefiting the individual, possibly increased the danger of the community.

That it did not always, however, benefit the individual, will appear from Jenner's statement, that—" Notwithstanding the happy effects of inoculation, with all the improvements which the practice has received since its introduction into this country, we sometimes observe it to prove fatal, and from this circumstance we feel at all times somewhat alarmed for its consequences " (*B. M. J.*, May 23rd, 1896).

Jenner observing the fact that persons connected with dairies who had contracted cow-pox while milking animals suffering from that disease were not susceptible to small-pox, proved experimentally that persons who had either taken cow-pox by contagion from the cow, or to whom it had been given by the operation of "vaccination," either with cow-pox matter from the cow or from a human being suffering from cow-pox, were equally insusceptible to the small-pox poison.

The results of his investigations were published in 1798. The practice spread rapidly during the first quarter of the present century, and prevailed widely.

It was beyond all question so adopted in the genuine belief that it afforded protection against small-pox (sec. 11.).

In 1802 the House of Commons made grants to Jenner and again in 1806, and annual grants were made to the National Vaccine Establishment which was founded in 1807, but it was not until 1840 that the first statute was passed dealing with the subject, entitled "An Act to Extend the Practice of

Vaccination." By this Act guardians and overseers of every parish or union in England and Wales were empowered to contract with qualified practitioners for the vaccination of all persons resident in such unions or parishes respectively. By the Act of 1840 inoculation was declared to be illegal, and the use of it was made penal. In the year 1841 there was supplemental legislation dealing with the expenses of carrying out the provisions of the Act of 1840.

By these Acts there was no compulsion on parents or others to procure or submit to vaccination, but the public vaccinators were to vaccinate all who might choose to come to them for the purpose.

The principle of compulsion was first introduced in the Act of 1850. It related only to those who had not already been successfully vaccinated. It seems, therefore, that re-vaccination was not contemplated. Under this Act the offence of not taking a child to be vaccinated within three months of birth was a single definite offence, and defendant, having been once convicted and fined, could not be proceeded against a second time.

Under the Act of 1867 the guardians of a child are bound to have it taken to the Medical Officer of the Dispensary District in which child is resident for the purpose of vaccination, unless it has previously been vaccinated by a qualified person. Upon the same day of the week following the child is to be brought back to the dispensary in order that the Medical Officer may re-vaccinate if necessary or obtain a supply of lymph. The Medical Officer must give the parent or guardian a certificate of successful vaccination, and transmit a duplicate certificate to the Registrar of Births of the district in which child was born.

Further Acts were passed in 1871 and 1874, and at the present time—

Failure to have child vaccinated within three months of birth, in absence of reasonable excuse, renders parent or guardian liable to a penalty not exceeding 20s.

Any person who prevents a medical officer taking lymph at a dispensary is liable to a penalty not exceeding 20s., and failure to produce child when required to do so renders parent or guardian liable to a penalty not exceeding 20s.

The duties of prosecution are in the hands of the Boards of Guardians under the supervision of the Local Government Board.

These provisions are contained in the Irish Act of 1879. All this legislation is founded on the assumption of the efficacy of vaccination, and that it is the duty of the State to enforce it even by the imposition of penalties for its neglect. (secs. 86-127.)

We must now briefly inquire how far the assumption is justified.

The first quarter of the 19th century was characterised in this and other countries by a striking decrease of small-pox. In the London Bills of Mortality the returns of small-pox for the year 1800 are 2,409. This was the last return as high as 2,000.

From thence onward the numbers fell, especially after 1810, reaching in 1818 the low figure of 421, the fall being irregular, and marked by epidemics in 1812, 1817, and 1825.

A similar falling-off was noted in other parts of England, in Sweden, Denmark, and other countries of Western Europe, and in the United States (secs. 55-56).

One effect of the introduction of vaccination was the very great decrease in the practice of inoculation. Was this the cause of the decrease in small-pox? If so, in the 18th century there should have been a marked increase in the number of small-pox cases during the period when the practice of inoculation was most prevalent, but as far as the evidence goes, there was no such increase, nor is there of sufficient evidence to show that the discontinuance of the practice of inoculation was a distinct subsidiary cause of the decline of small-pox in the 19th century (sec. 75).

Was the decrease due to improved sanitary conditions?

There is really no evidence to show that the first quarter of the present century was in any way differentiated from the proceeding quarter or half of the 18th century in the matter of sanitary improvements, and any advance which there may have been was in no way proportional to the decline of small-pox. The decline, it must be noted, was equally evident in other countries in which no sanitary improvements were evident until a very recent period.

On the other hand, it must be noticed that wherever vaccination is introduced into a community previously unvaccinated, where small-pox is rife, the number of cases diminishes, and the type of the disease becomes milder (sec. 81).

Thus in Egypt vaccination was not introduced until 1827; up to that time small-pox was extremely prevalent, the decline which in Western Europe was marked during the first quarter of the century appears to have been absent there.

Similar observations have been made regarding the native tribes in North America, and also in Brazil.

There is no adequate evidence of a decline in unvaccinated countries like that which took place in vaccinated countries (sec. 84).

Speaking generally of the period since 1838, when the present system of registration of deaths commenced in England, there has been a marked, though irregular, decline in the death rate from small-pox (sec. 133),

If the improvements in sanitary conditions which have taken place during the last fifty years were the cause of the mortality from small-pox becoming less, we should expect to see that they had exercised a similar influence in the case of measles, scarlatina, whooping-cough, and indeed any disease spread by contagion (sec. 154).

In the case of measles, the decline in death-rate has not been at all comparable to that of small-pox. Until 1880 there was no sign of decrease in the death-rate of scarlatina. Small-pox stands alone as regards the decline in mortality, and that decline began with the introduction of vaccination.

The Commission investigated reports of six epidemics—viz., Gloucester, Sheffield, Warrington, Dewsbury, London, and Leicester. In Gloucester and Leicester the practice of vaccination had, to a large extent, been abandoned for some years prior to the recent epidemics in those towns.

In Leicester the percentage of births unaccounted for by the vaccinating officers, in 1892, was 80·1.

In Gloucester, in 1894, it was 85 per cent.

In Leicester the percentage of total small-pox deaths which occurred under ten years of age was 71·4, in Gloucester 64·5.

At Gloucester, 26 vaccinated children under ten were attacked, of whom 1, or 3·8 per cent., died.

Of unvaccinated children of similar age 680 were attacked, of whom 279, or 41·0 per cent., died.

Of vaccinated persons over ten 1,185 were attacked, of whom 119, or 10 per cent., died.

Of unvaccinated of similar age 88 were attacked, of whom 35, or 39·7 per cent., died.

It is unnecessary that we should consider the other epidemics—the figures are similar in each case; and, to use the words of the Report, “the conclusion is irresistible that some circumstance must have existed distinguishing the class selected as vaccinated from that selected as unvaccinated; the only condition which regulated the distribution of the cases into the one class or the other was the presence or absence of vaccination. It is only reasonable, therefore, to attribute the difference to vaccination” (sec. 219).

As regards the type of the disease—

If we take the epidemic at Warrington in 1891–92, Dr. Savill reports on the type of the disease in 661 cases, of whom 593 were vaccinated or doubtful, and 68 unvaccinated. He includes amongst the confluēnt cases those which were malignant or haemorrhagic.

Of the 593 vaccinated cases—

323, or 54·5 per cent.	were mild.	
141, or 23·8	“	discreet.
129, or 21·8	“	confluent.

Of the 68 unvaccinated cases—

3, or 4·4 per cent.	were mild.	
17, or 25·0	“	discreet.
48, or 70·6	“	confluent.

That is, amongst the vaccinated cases—

54·5 per cent. were mild, and 21·8 per cent. confluent.

Amongst the unvaccinated—

4·4 per cent. were mild, and 70·6 per cent. confluent.

These figures are typical of the results obtained from the investigations of the six epidemics. There appears to be sufficient evidence to point to the conclusion that the greater the number of vaccination marks the greater the protection in relation to small-pox enjoyed by the vaccinated person.

Statistics show that of the fatal cases of small-pox among the vaccinated—

7·6 per cent. had 1 mark, 7·0 per cent. had 2 marks.

4·2 „ 3 marks, 2·4 „ 4 „

(Sec. 293.)

As to the effects of re-vaccination,—at Leicester, at the end of 1892, the staff of the hospital consisted of 28 persons; 14 of these had either had small-pox or had been re-vaccinated before the outbreak; 8 others were vaccinated at the time of the outbreak; the remaining 6, although they had not previously been re-vaccinated, refused to submit to the operation. Out of the 28, 6 were attacked by the disease, of whom 1 died; 5 of the persons thus attacked by the disease, including the one fatal case, were amongst the 6 persons who had refused to be re-vaccinated. The sixth case (a mild one) was that of a nurse who had been re-vaccinated ten years before (sec. 319).

Dr. Grimshaw states that at Cork-street Hospital, when he was on the staff of that institution, all the officers and servants were re-vaccinated, with the exception of one student who refused to be re-vaccinated. He died of small-pox!

At Cork-street Hospital, and also at the Hardwicke Hospital, during the epidemic of 1894–95, there was no single case of a recently successfully-vaccinated person contracting the disease.

With regard to “the effect of vaccination in reducing the prevalence of and mortality from small-pox,” the Commission, having reviewed the evidence, find—

- (1.) That it diminishes the liability to be attacked by the disease.
- (2.) That it modifies the character of the disease, and renders it (*a*) less fatal and (*b*) of a milder and less severe type.
- (3.) That the protection it affords against attacks of the disease is greatest during the years immediately succeeding the operation of vaccination. It is impossible to fix with precision the length of this period of highest protection. Though not in all cases the same, if a period is to be fixed, it might, we think, fairly be said to cover in general a period of nine or ten years.

- (4.) That after the lapse of the period of highest protective potency, the efficacy of vaccination to protect against attack rapidly diminishes, but that it is still considerable in the next quinquennium, and possibly never altogether ceases.
- (5.) That power to modify the character of the disease is also greatest in the period in which its power to protect is greatest, but that its power thus to modify the disease does not diminish as rapidly as its protective influence against attacks, and its efficacy during the later periods of life to modify the disease is still considerable.
- (6.) That re-vaccination restores the protection which lapse of time has diminished, but the evidence shows that this protection again diminishes, and that to ensure the highest degree of protection which vaccination can give, the operation should be at intervals repeated.
- (7.) That the beneficial effects of vaccination are most experienced by those in whose case it has been most thorough. We think it may be fairly concluded that where the vaccine matter is inserted in three or four places it is more effectual than when inserted in one or two places only, and that if vaccination marks are of an area of half a square inch, they indicate a better state of protection than if their area be all considerably below this (sec. 377).

With regard to "the objections made to vaccination, on the ground of injurious effects alleged to result therefrom, and the nature and extent of any injurious effects which do in fact result"—

The diseases alleged to have resulted were—Tabes mesenterica, diarrhoea, bronchitis, pyæmia, skin disease, syphilis, convulsions, cholera, diphtheria, pneumonia, atrophy and debility, whooping-cough, erysipelas, and scrofula—a fairly formidable list. With regard to these diseases the Report says: "We do not find any facts to warrant the assertion that the increased mortality from tabes mesenterica and scrofula, or any part of it, was due to vaccination. Without encumbering our Report with the details relating to pyæmia,

bronchitis, diarrhoea and skin diseases, which are all said to have increased owing to the mischievous influence of vaccination, we may confidently say that there is no evidence to justify the statement" (secs. 396, 397).

With regard to syphilis: "The evidence offered to us would lead to the belief that whilst with ordinary care the risk of communication of syphilis in the practice of arm-to-arm vaccination can, for the most part, be avoided, no degree of caution can confer absolute security" (sec. 430).

With regard to erysipelas: "There can be no doubt that even very slight wounds may lead to erysipelas. It has been induced by scratches of pins, abrasions from the dress and other injuries, in themselves most trivial. A vaccination wound is like one from any other cause, so long as it exists, a source of some risk" (secs. 412, 415).

"A careful examination of the facts which have been brought under our notice has enabled us to arrive at the conclusion that although some of the dangers said to attend vaccination are undoubtedly real, and not inconsiderable in gross amount, yet when considered in relation to the amount of vaccination work done they are insignificant" (sec. 415).

The final recommendations of the Commission are as follows: "We put the use of calf lymph to the forefront, because, as we have said, this would afford an absolute security against the communication of syphilis. Though we believe the risk of such communication to be extremely small where humanised lymph is employed, we cannot but recognise the fact that, however slight the risk, the idea of encountering even such a risk is naturally regarded by a parent with abhorrence. We think, therefore, that parents should not be required to submit their children to vaccination by means of any but calf lymph; but this should not preclude the use of humanised lymph in case they so desire. So long as the State, with a view to public interest, compels the vaccination of children, so long even as it employs public money in promoting and encouraging the practice, we think it is under an obligation to provide that the means of obtaining calf lymph for the purpose should be within the reach of all" (sec. 437).

With a view to diminishing hostility to the operation it is

recommended that there should be an extension of age within which vaccination is required (sec. 439), and that vaccination vesicles should not be opened unless for some adequate reason (sec. 447).

Other recommendations follow: the preservation of lymph in tubes in place of on dry points, the sterilisation of all instruments used in vaccination, the substitution of the second week for the eighth day as the time for the inspection of the vaccinated arm, and the right of parents to call in the vaccinator on account of unfavourable symptoms prior to the time fixed for inspection (secs. 448, 449, 450).

"We have no difficulty in answering the question, 'what means other the vaccination can be used for diminishing the prevalence of small-pox ?' We think that a complete system of notification of the disease accompanied by an immediate hospital isolation of the persons attacked, together with a careful supervision, or, if possible, isolation for sixteen days of those who had been in immediate contact with them, could not but be of very high value in diminishing the prevalence of small-pox. It would be necessary, however, to bear in mind two conditions of success—first, that no considerable number of small-pox patients should ever be kept together in a hospital situated in a populous neighbourhood, and secondly, that the ambulance arrangement should be organised with scrupulous care." However "we can see nothing to warrant the conclusion that in this country vaccination might safely be abandoned and replaced by a system of isolation" (secs. 499, 503).

The effects of keeping large numbers of small-pox patients in a hospital situated in a populous neighbourhood are well seen in two diagrams which I have abstracted from Parkes's *Hygiene*. Similar effects have been observed in Sheffield, Leicester, Warrington, and other places (sec. 474).

Further recommendations are—That power should be given to sanitary authorities to give compensation for loss of wages occasioned by isolation (sec. 506); that notification of small-pox should everywhere be made compulsory (sec. 534); that increased powers should be given to the local authorities with regard to common lodging-houses (sec. 507); that re-vaccination should be encouraged without being made

compulsory (sec. 533); and that persons committed to prison by reason of non-payment of penalties under the vaccination laws should no longer be treated as criminals (sec. 535).

The weakest part of these recommendations is, I think, with regard to re-vaccination. In these days of compulsory education, means could surely be found for re-vaccinating children at the time when they enter school. No doubt there would still be a large number unaccounted for, but, on the whole, the number of re-vaccinated persons would be larger than it is at present.

When the Commission deals with the question of those who have an "honest" objection to vaccination, it makes a suggestion, but offers no very satisfactory advice as to how the suggestion could be carried out. The Report says:— "After careful consideration and much study of the subject we have arrived at the conclusion that it would conduce to increased vaccination if a scheme could be devised which would preclude the attempt (so often a vain one) to compel those who are honestly opposed to the practice to submit their children to vaccination, and, at the same time, leave the law to operate as at present to prevent children remaining unvaccinated owing to neglect or indifference of the parent." It is suggested that it might be provided that if a parent attended before the local authority and satisfied them that he entertained such an objection no proceedings should be taken against him; or, again, a statutory declaration to that effect before anyone now authorised to take such declaration, or some other specified official or officials, might be made a bar to proceedings. "We do not think it would be any real gain to parents, who had no conviction that the vaccination of their children was calculated to do mischief, to take either of these steps rather than submit to the operation" (sec. 525).

While recognising the fact that the anti-vaccinationist cause has been assisted to a very great extent by the martyrdom of a few of its adherents, I fail to see that the procedure here suggested could possibly be free from abuse.

In the first place we are not told what is meant by the phrase "honest objection." Can an objection founded on ignorance be properly termed "honest?" Is the "honest objector" to be freed from his obligations by a statutory

declaration in the case of laws dealing with matters other than vaccination? If so we may, in the future, expect to hear of publicans with "honest objections" to Sunday closing, and of members of the peace societies who have "honest objections" to income tax on the ground that the War Office is directly or indirectly supported thereby. Though these instances may be fanciful, I think the course suggested would form a very dangerous precedent if once legalised.

Again, the recognition of "honest objections" would put a premium on the endeavours of busybodies to convert the ignorant to anti-vaccinationist principles. Who could blame a fond mother for wishing to make a statutory declaration before a magistrate on hearing the terrible and oft-repeated tales of syphilis, erysipelas, and tuberculosis, to say nothing of leprosy and all the other diseases which are said to be due to this practice? Once excite the mother's fears and in nine cases out of ten it will be impossible to get her to listen to reason, and in time the Vaccination Acts will become, for practical purposes, dead.

The Report of the majority is signed by eleven of the thirteen members of the Commission.

Sir William Hunter and Mr. Jonathan Hutchinson add that they are unable to recommend relaxation of the law with respect to the above suggestions, and recommend compulsory re-vaccination; while Mr. Whitbread, Mr. White, Dr. Collins, and Mr. Picton express their dissent from the proposal to retain in any form compulsory vaccination. They recommend that conscientious objection on the part of the parent should be respected, and that the offer of vaccination should be made at the home of the child, leaving the parent free to accept or reject the offer.

Dr. Collins and Mr. Picton alone dissent from the majority of the Commission in their opinion regarding the efficacy of vaccination.

I have gone into the evidence taken before the Commission very imperfectly; but I commend to your consideration its recommendations, based on the most elaborate accumulation of proof of the efficacy of vaccination as being of vast importance to all who are interested in the public health.

ART. III.—*Clinical Pictures of Children's Diseases.* By LANGFORD SYMES, M.R.C.P.L., &c.; late Clinical Assistant, Deputy Medical Registrar and Pathologist, Hospital for Sick Children, Great Ormond-street, London.

(Continued from Vol. ciii., page 485.)

VII. TREATMENT OF DIARRHOEA.^a

IN treating diarrhoea in children very distinct objects must be kept in view, and our remedies given on a true scientific basis. Recollect:—Poisoning and fermentation from micro-organisms; indigestible and undigested food with deficient evacuation, and a profuse and dangerous drain of water from the system. The slightest remedy relieves the mild cases, while others are hopelessly incurable in the absence of a suitable antitoxin.

1. *General management.*—Keep the child warm; wrap up the legs and arms in cotton wool; place hot bottles round the child in bed; apply a wool jacket and a flannel binder. This heat is of the first importance. Normally our main loss of heat is through the skin, and the smaller the animal the greater proportion is there of superficial area to body-weight, and therefore the greater the loss. In small children, then, all heat must be preserved, and especially where diarrhoea exists. See that the nurse is scrupulous in her cleanliness. Clean, dry napkins must be constantly at hand and applied; the bed must be level, smooth, and fresh linen put on the moment it is required, and the child should lie in a dry, warm, clean cot, with the cleanest of clothes around it.

Procure all the rest possible. Relieve eruptions, irritations, excoriations, by suitable powders, as oxide and carbonate of zinc, with a little boric acid, or a weak carbolated solution of subacetate of lead. Carefully attend to the mouth. Daily cleansing will be necessary to remove fungi of thrush, if present. Glycerine of borax, diluted peroxide of hydrogen (2 per cent.), or salol in glycerine, are excellent applications.

2. *Remove irritating particles of food.*—Give a purgative

^a Read before the Medical Section of the Royal Academy of Medicine in Ireland, on Friday, April 9, 1897. [For the discussion on this paper, see page 68.]

to stop the purging. Nature makes strenuous efforts to perform this herself. In the profound collapse of choleraic cases a purgative is scarcely safe, but no hard and fast rule can be laid down, as it depends on the state of the child's strength. The best drug is castor oil. It affects the stomach and upper portions of the small intestines. There are two ways of giving it. A full dose acts directly as a thorough purge, and clears the bowel; a drachm is quite sufficient for a child 1 year old, and 3ss. for a younger infant. The earlier this is given the better. In chronic attacks 10 to 15 minims given daily, in the mornings, is best for some, if continued for a long time. The second method is to give m 5 every hour. This is very soothing for small children. An extremely useful prescription is :—

R.—Olei Ricini, m 5.

Mucilag. Acaciæ, m 15.

Aquaæ Menth. Pip., ad. 3i. Given every hour.

If thought advisable, m 1 of the liquor hydrarg. perchlorid. in each drachm of the castor oil mixture does great good. Olive oil is suitable for very young infants. Fluid magnesia, liquorice powder, Tamar Indien, or elixir of senna, for older children. The syrup of rhubarb also acts well. Another useful mixture is :—

R.—Pulv. Rhei, gr. i.

Sodii. Bicarb. gr. $\frac{1}{2}$.

Syrupi Zingiberis, m 8.

Aquaæ Menth. Pip., ad 3i.

The administration of a purge in the collapsed states of severe infective summer diarrhoea, is an extremely serious question. It can be decided only by a thorough grasp and appreciation of the case in point.

2. *Diet.*—This complaint is a diet disorder, therefore much care is necessary with the food. Milk is not truly a liquid diet, for it solidifies in the stomach. The upper classes and the very low classes frequently do not nurse their children; the middle classes do, for they are neither too fashionable to ignore it, nor have they to labour, and so hand-feed the infant. Undoubtedly, pure fresh milk is best unboiled if the source is known to be pure, but in cities it is, perhaps, safest to boil it before use.

- (a.) *Change the Milk at once*, except for infants at the breast, who should get nothing else, and this only at regular intervals. The fact that the child has diarrhoea is sufficient proof that the food disagrees. If a wet nurse is employed, the greatest care must be taken in the selection.
- (b.) *Diluted Milk*.—Equal parts, or $\frac{1}{3}$ of pure water, breaks up the curd. Barley-water makes the curd less firm. Soda-water is excellent if the child will take it; the effervescence smashes up the curd by the bubbles of air. Lime-water, by virtue of its alkalinity, is often used, but if for the express administration of lime it is useless. There is more lime in cows' milk than in lime-water—cow's milk contains 1.51 per cent., and lime-water 0.14 per cent. A few drops of the saccharated solution is best if lime is required medicinally. Plain boiled water is a good diluent, or one ounce each of milk, lime-water, and boiled water.
- (c.) *Humanised Milk* contains less curd and more cream. The only scientific way of feeding infants artificially is by regulating the percentages of proteids, fats, and sugar. In rough terms we should keep the proteids near 1 per cent.

Cream Milk :—

Milk	-	3 ounces.
Water	-	3 ,,
Cream	-	1 ,, (20 per cent. fat)
Lime-water		1 ,,
Milk sugar		3 drachms.

Cream milk is specially prepared by the Aylesbury Dairy Co. in London for infants. Equal quantities of cows' milk and a nine per cent. solution of lactose are passed through a separator so arranged that the outgoing streams are equal (cream milk and skim milk.) The cream milk is Pasteurised and supplied in vacuum-stoppered bottles.

Gartner's Milk :—Equal quantities of cow's milk and sterilised water are poured into a centrifugal separator similarly arranged that the outgoing streams are equal. The cream milk thus obtained is an excellent substitute for human milk.

Rotch^a has devised 13 scientifically humanised mixtures of various compositions suitable from birth to the age of weaning, with definite percentages of proteid, fat, and sugar, for which the Profession is indebted to him.

A simple process is :—Skim the cream off, divide the milk in half, make rennet whey of one half, and mix all three together again, leaving out the curds. This is approximate.

The humanised milk supplied by the Aylesbury Dairy Co. in glass bottles is excellent.

Whey may be given with cream. $\frac{3}{5}$ ss. cream to $\frac{3}{4}$ iv. whey, or whey and barley-water, or cream and barley in small quantities.

(d.) *Peptonised Milk* 2 parts; with water 1 part.

(e.) *Condensed Milk* if good is good, but the popular demand is for a sweet milk and not a good milk. The “*Milk-Maid Brand*” (Anglo-Swiss) contains more fat (10·92 per cent.) than others, and is very good. The “*Ideal*” brand is also good. Some brands contain only 0·42 per cent. fat.

(f.) *Sterilised Milk*.—This is free from poisonous germs, but may, perhaps, produce scurvy unless mixed with some fresh milk or whey. Sterilisation devitalises milk, but one meal of fresh whey daily will prevent the onset of scurvy. Starr reported 5 cases of scurvy in 1895 in infants fed on sterilised milk. Recovery took place rapidly on unsterilised milk, raw meat-juice, orange juice, and citrate of iron. Some antiscorbutic element is destroyed by boiling the milk, but this danger has been greatly exaggerated. Milk is sterilised by exposure for 20 to 30 minutes to super-heated steam. It is easily prepared for infants by “placing it in a china vessel which stands in cold water, the water being then boiled for 15 minutes.” This method is devoid of danger of scurvy or constipation, and is, for all practical purposes, sterilised though not boiled—(Dr. Kingston Barton, *B. M. J.*, Jan. 2, 1897, p. 14.) Professor Whitla advises “milk to be boiled on a water bath in small bottles plugged with sterilised wool for 15 minutes,” the bottles to lie in a

* Cf. Dr. Cautley on Infant Feeding, 1897, p. 152.

saturated solution of boric acid. This milk remains good for 5 days.

Sterilised milk and barley-water may be mixed in varied proportions with 10 drops of liquor calcis saccharatus. Numerous sterilisers are in the market :—

Soxhlet's is suitable for home use, and moderately cheap ; *Rotch's* apparatus is simpler ;

Hawksley has 3 kinds ; while other apparatus are *Escherich's* (*Lancet*, Feb., 1891), *Starr's*, *Caille's*, *Siebert's*, *Warner's*, &c.

(g.) *Pasteurised Milk* is milk raised to a temperature of 70° C. (158° F.) for half an hour, and then cooled rapidly. This will not render tuberculous milk perfectly innocuous, but will render the milk of a mixed herd safe. Its advantages are—taste and smell are unaltered, microbes present are destroyed, chemically it is not seriously changed, and fermentation is stopped.

(h.) *Attend to the Feeding Apparatus.*—A proper feeding bottle should have no tube, no angles, no indentations on glass, a wide mouth. It should be of transparent flint glass, easily cleansed, about 8 oz. in size, and impossible to be used by the child alone. It might also be graduated.

(i.) *Eliminate Starch from the Food.*—Bread-jelly, barley-water, rice-water, and Mellin's food seem the least disastrous of these, but they are often inadmissible.

(j.) *Stop the Milk altogether* in severe cases. Even whey will ferment.

There are many substitutes for milk. Raw meat juice is excellent for children ; it is a good antiscorbutic. The serapings of a rump steak against the grain ; or shred, pounded, sieved, and strained through muslin, may be given, a drachm every 4 or 6 hours, sweetened. Gravy.

Gum Arabic in Boiled Water.—White of egg diluted or “albumin water” is the white of an egg cut in various directions with a clean scissors, shaken up in a flask, with a pinch of salt; and 6 ounces of pure cold water, strained through muslin and sweetened. This can be given alone or with mixed milk. Valentine's meat juice; Brand's jelly; veal or chicken tea; white wine whey; plenty of pure fresh water; beef essence; beef pulp; clear soup; chicken jelly;

the yolk of egg beaten into an emulsion, with hot water, strained and sweetened ; raw meat jelly.

4. Antiseptics to allay Fermentation.—Thorough intestinal antisepsis is impractical, for in fully sterilising the bowel we may poison the child. Some antiseptics are strong poisons—*e.g.*, perchloride of mercury, carbolic acid ; others are disagreeable, as iodoform, naphthalene, B-naphthol. Some are soluble and act in the stomach and higher intestinal tracts—resorcin, carbolic acid, mercury perchloride, lactic acid, sodium salicylate, &c. Others again are insoluble or decomposed in the intestine into antiseptic substances—calomel, salol, benzol, naphthol, bismuth salicylate. The most useful are:—

Calomel.—Given at once, with or after an initial dose of castor oil, in fractions of a grain frequently. It is of great use. Gr. $\frac{1}{10}$ every $\frac{1}{2}$ hour till 1 gr. has been taken. (In older children, of 5 to 8 years, it might be followed by a saline draught of Apenta water in the purely dyspeptic cases).

Resorcin.—Gr. $\frac{1}{2}$ to gr. 5 is active in the stomach and upper intestinal tract. It is non-irritating, is soluble and sweet. It may be given with glycerine and cinnamon water, and a carefully regulated dose of tincture of opium, or with bismuth carbonate and Dover's powder. Bulky powders, however, are inadvisable in young infants. Resorcin should be continued after the diarrhoea has ceased.

Bismuth Salicylate.—Gr. 1-3 every 4 hours. Tasteless, not unpleasant. Given abroad with gum arabic, sugar, and distilled water.

Benzol. Naphthol.—Dr. Soltau Fenwick uses up to gr. 30 per day. It is non-poisonous.

Sodium Salicylate.—Gr. 2-4 every 4 hours relieves gastric fermentation.

Hydrarg c. cret.

Liquor Hydrarg. Perchlorid.—m 1 doses.

Glycerine of Carbolic Acid.—m 1 to 4. Often usefully combined with a castor oil mixture.

Naphthalene.—Gr. 1-3.

Glycerine of Borax.—m 30.

Thymol., Listerine, Salol.

Lactic Acid is said by LeSage and Professor Hayem to check green diarrhoea. This is confirmed by others. One

drachm of a 2 per cent. solution may be given, or as a drink when mixed in proportions of a drachm to a pint of sweetened water.

5. *Intestinal Irrigation to eliminate Toxins.* Well worth trying. Out of 200 cases experimented on by Dr. Seckolow to test the efficiency of the ileo-cæcal valve, 130 were in children under one year. Of these 130 the valve was competent in only 27, while in 103 water passed freely through it into the ileum. This is encouraging, as in over $\frac{3}{4}$ of the cases the ileum was reached. In older children of from one to twelve years, out of 70 experimented on in only 33, or less than half, did the fluid pass the valve.

It must be a high irrigation of the bowel with a soft rubber catheter from a glass douche-can. First wash out the rectum, and then irrigate with normal saline solution or boric lotion used warm. Slight elevation of the douche-can is sufficient—18 inches. It is carried out in bed, and an Indianarubber bed-pan is a great help. A small enema is of no use. Rectal irrigation is one thing, but intestinal irrigation is quite another.

Washing out the Stomach is vigorously recommended by Dr. Vaughan with grs. 60 of sod. bicarb. in a pint of water at 100° F. Resorcin or boric acid solutions have also been suggested by Continental writers.

6. *Sedatives to allay Excessive or Abnormal Peristalsis.* The best of these is the dangerous drug *opium*. When carefully given it does no harm. A child of three months old might be given $m\frac{1}{4}$ of tincture of opium for a dose. A most excellent form is:—

R.—Tinct. Camph. Co., m 1.

Glycerine Acid, Carbolic., m 1.

Olei Ricini, m 5.

Mucilaginis Accaciæ, m 15.

Aquæ Menth. Pip., ad 3*i.*—Frequently.

For a child one year old the dose of tinctura camph. co. may be 5 to 10 drops, or of Dover's Powder, gr. $\frac{1}{2}$.

Chlorodyne may also be given if carefully watched. The greatest care must be taken in the prescription of opium, for it is dangerous though useful.

In older children a very useful powder is—

R.—Bismuth. Carb., gr. 3.

Sod. Bicarb., gr. 3.

Pulv. Ipecac Cō., gr. 1.—Sumatur bis die.

We must recollect that if opium allays peristalsis, it also locks up the poison in the intestine.

7. *Restoratives for Collapse*.—Fresh, pure water to drink is strongly indicated. Water is essential to life, and constitutes more than half the entire body-weight. Proportionately the infant requires more than the adult. Frequent drinks of pure fresh-boiled water are urgently needed. If it cannot be given by the mouth, it may be injected warm into the rectum. The loss of water is extreme, and recollecting the dry condition of the tissues, we only respond to Nature's call when we administer it.

Stimulants are given by some and strongly withheld by others. If indicated brandy or strong coffee are suitable. Camphor, gr. $\frac{1}{4}$ to grs. 2 may be suspended in mucilage with glycerine.

A warm bath with a tablespoonful of mustard in a muslin bag in it, is advised by Dr. Goodhart, followed by wrapping in hot blankets. I have seen it resuscitate for a time, but death followed afterwards. The fact is we have, for choleraic cases, no effectual remedies.

Subcutaneous injections of horse serum were tried in Germany last year (1896). Out of 15 children injected with from 10 to 20 ccm. under the skin of the thorax, 4 died. One per cent. sterilised saline solution has also been given hypodermically—10 cc. at a time—with a Roux syringe.

PRECAUTIONS AGAINST DIARRHŒA.

Before leaving the subject, it would be omitting a most important thing, did one not allude to the prevention of this disorder.

All these diarrhoeas could be prevented by attention to the following methods, and preventive treatment intelligently carried out would save thousands of lives annually in our large cities. The difficulty is in the organisation of these measures; they are:—

(a.) *The scientific regulation of artificial feeding*, involving such considerations as:—

- The size of the child's stomach ; its age and weight.
- The quantity to be given at each feed.
- The number of meals in 24 hours.
- The selection and composition of the best substitutes for human milk.
- The method of preparation.
- The kind of apparatus.
- The temperature of the food.
- The manner of administration.
- The preservation of the food.
- The cleanliness of all apparatus.

(b.) *The purification of the ground.*—This is within the reach of the Public Health Authorities, and consists of sanitary improvements in overcrowding, ventilation, cleanliness of ashpits, sinks, sewers, disposal of refuse, drains, cleanliness of houses, premises, and yards.

It is from the superficial layers of earth that the poisonous organisms appear to be derived.

(c.) *The Purification of Milk.*—A recent writer says—"The management of our milk supply is a disgrace to a nation possessed of a scientific knowledge of the diseases dependent upon it." Our country is a long way behind Denmark in the management of its milk supply. Copenhagen is very well and scientifically supplied by a company. The various processes are carried out at 40° F., and it is supplied to the consumers at this temperature in carefully sterilised bottles sealed with clean new corks.

Some such outlines as the following are involved in this reform, and to ensure a pure milk supply it is suggested—

That cows should be grass-fed on pure pasture only.

That stall-fed cows, if existing, should get green fresh food, and no fermented foods as brewery grains, turnips, or oil cake should be used.

That cows should have a pure water supply.

That they should be kept very clean, groomed, and clipped, and their udders washed before milking.

That they should be periodically and most skilfully examined, and healthy animals only milked.

That sick or condemned animals should be at once removed from dairies.

That each animal should be branded on the horn.

That a Government License should in all cases be obtained to sell milk.

That cow-houses should be so constructed that the floors and walls can be washed down with a hose, disinfected, and the yards kept pure.

That no consumptive or other unhealthy people should be permitted to work in dairies.

That milk-cans should be of a regulation size and shape, so as to facilitate thorough cleansing by steaming and scouring, with dome-shaped bottoms, smoothly soldered joints, and easily cleansed taps.

That the milk should be properly cooled down to avoid development of micro-organisms.

That it should be kept in suitable covered vessels till used. If milk is so delivered to the consumer, summer diarrhoea will, perhaps, seldom occur, and sterilisation will be then unnecessary.

It may afterwards be affected in the house by unclean vessels and utensils, places of storage, and surrounding unsanitary conditions.

A Sanitary Order, which is worthy of notice, has recently been made by the Board of Health in Buffalo, N.Y., to the following effect :—

“That it shall be unlawful for any person or persons to use, or to engage in the sale of, any bottle, mechanism, or other device for the artificial feeding or nursing of infants or young children under 3 years of age, which has connected therewith a rubber tube, hose, or such contrivance.”

(To be continued).

ART. IV.—*Angina Pectoris.*^a By JOHN KNOTT, M.A., M.D., Ch.B., and Dip. Stat. Med. (Univ. Dubl.); M.R.C.P.I.; M.R.I.A.; Fellow of the Royal Academy of Medicine in Ireland'; &c.

(Continued from Vol. ciii., page 475.)

WHAT the internal conditions are which determine the external manifestation of symptoms connoted by the term *angina pectoris* is a query which has proved a striking specimen of a pathological *pons asinorum*. The following list of views have been advocated by various authorities:—Dr. Heberden himself attributed it to spasm, which he did not, however, quite definitely locate; he seems to have looked upon the characteristic pain as a “cramp”—somewhere. Dr. Macbride, of Dublin, whose case I have already quoted, located the spasm in the muscular substance of the heart. In this he was followed by Dr. Latham. The famous apostle of vaccination, Dr. Edward Jenner, was the first to advance the view that the symptoms were dependent on the existence of calcification of the coronary arteries; and this idea was further expanded by Sir Everard Home, who explained the pain by the pressure of the cardiac nerves against such calcified arterial tubes—during spasm of the muscular tissue. Desportes made it a neuralgia of the pneumogastric, Laennec of the sympathetic, Bouillaud of the phrenic, Jolly of the intercostal nerves, Piorry of the brachial (and some thoracic) nerves, Romberg of the cardiac plexus. Bamberger, with his characteristic German super-refinement of nomenclature, made it a *hyperkinesis with hyperesthesia* of this plexus. Dr. Erasmus Darwin attributed it to spasm of the diaphragm, and Butter regarded the condition as symptomatic of diaphragmatic gout—a view in which he was followed by MacQueen, Johnston, and Blackall. Rougnon, of Besançon, attributed all the phenomena to the results of ossification of the costal cartilages. Virchow ascribed them to embolic plugging of the coronary arteries.

The most important evidence of any has, to my mind,

^a Read before the Section of Medicine of the Royal Academy of Medicine in Ireland, Friday, April 9, 1897.

been furnished by Lancereaux and Peter, who, in several cases, reported distinct evidence of neuritis in the nerves of the cardiac plexus. This would, I think, satisfactorily account for the pain; and the irritative reflex inhibition, which might be a consequence of the involvement of the branches of the pneumogastric engaged in that plexus, would account for the sudden death which so often marks the period of this painful affection.

In the face of the varying conditions which have been found on examination of the bodies of persons who have died with the symptoms of angina pectoris, it is somewhat curious to find this condition defined as follows by the writer on the subject in the "Twentieth Century Practice of Medicine":—"Angina pectoris . . . is an affection of the heart characterised by paroxysms of agonising pain of sudden occurrence which irradiate usually to the shoulder and left arm, attended with an awful sense of impending death, *caused by sclerosis of the coronary arteries* at or about the aortic orifice." On the next page but one we read: "As certain cases, even fatal, have been found without discoverable anatomical lesion . . ."; and later on: "Tacchi reports the following lesions observed in 70 cases: lesion of the coronary arteries, alone or accompanied with other lesions of the heart or great vessels, 38 times; insufficiency of the aortic sigmoids, 12 times; aneurysm of the arch of the aorta, 5 times; fatty degeneration of the heart, 4 times; hypertrophy and dilatation, 4 times; pericarditis, 3 times; suppuration in the mediastinum, 1 time; negative results, 3 times." It requires no very special knowledge of either logic or medicine to be able to see that a chain of 70 links, of which three essential ones have been subjected to a process of instantaneous evaporation, has ceased to function as a bond of union between a fact and a theory.

That the great majority of cases of angina pectoris are accompanied by structural changes in the heart or aorta, or both, is a necessary conclusion from the great bulk of the evidence which has up to the present been collected on the subject. Of 19 cases tabulated by Dr. Ogle in a very able communication to the Pathological Society of Loudon,

12 presented calcification of the coronary arteries; 12, fatty degeneration of the cardiac muscle; 10, atheroma of the aorta; and 6, valvular disease of pronounced character.

A close approximation to the pathological explanation of angina pectoris was made by Wall, whose communication to Heberden on the subject was, like the letter from the "Unknown," elicited by the publication of his original description. Both letters were read at the same meeting of the College of Physicians; and that of Wall contains the first account of a *post-mortem* examination of a patient who succumbed in a paroxysm, which, so far as I know, followed Heberden's baptism of the symptom-group. This man "died after having struggled in the fit about two hours," and "the heart appeared of an uncommon size, and was covered with a great quantity of fat; the pericardium contained not less than a pint of fluid . . . ; no part appeared diseased till we opened the left ventricle; and there, the semilunar valves, placed at the origin of the aorta, were found to be perfectly ossified. They did not, as usual, lie flat upon the divided orifice of the vessel; but stood erect, and appeared to be immovable. They were entirely osseous through their whole substance . . . ; the aorta was at its curvature considerably enlarged; and for near an inch from the heart was in part ossified; there being several bony scales or laminæ in it, but not connected with one another." On this condition he makes a series of interesting remarks, of which the following forms the concluding paragraph:—"It is possible that this induration of the semilunar valves may not be always the cause of this disease; though it seems not improbable that some malformation in the heart or vessels, immediately proceeding from it, may be so. Indeed, when we consider how frequently such indurations in the valves of the heart have been found; that the disease in question does not come on till a person is advanced in years, and consequently till a rigidity in every part naturally comes on; we shall, I think, be inclined to imagine that a *præternatural* induration of the parts necessary to the circulation through the heart may be the predisponent, if not the efficient cause of this disorder."

To the great Edward Jenner, the philanthropic apostle of vaccination, is attributable the credit—if, indeed, any credit really exists—of having tried to explain the symptoms by the presence of disease of the walls of the coronary arteries. This suggestion is contained in a very interesting (and otherwise remarkable) letter—also communicated to Dr. Heberden—on the case of his revered friend and former teacher, John Hunter, whom he had seen (in 1776) after a second attack of angina pectoris. The intrinsic interest of this letter makes it well worth reading at the present day, even apart from the passing inspiration which every true lover of medicine must feel from the association of the great names connected with it.

“When you are acquainted with my motives, I presume you will pardon the liberty I take in addressing you. I am prompted to it from a knowledge of the mutual regard that subsists between you and my worthy friend, Mr. Hunter. When I had the pleasure of seeing him at Bath last autumn, I thought he was affected with many symptoms of the angina pectoris. The dissections (as far as I have seen) of those who have died of it throw but little light upon the subject. Though in the course of my practice I have seen many fall victims to this dreadful disease, yet I have only had two opportunities of an examination after death. In the first of these I found no material disease of the heart, except that the coronary artery appeared thickened.

“As no notice had been taken of such a circumstance by anybody who had written on the subject, I concluded that we must still seek for other causes as productive of the disease; but about three weeks ago Mr. Paytherus, a surgeon at Ross, in Herefordshire, desired me to examine with him the heart of a person who had died of the angina pectoris a few days before. Here we found the same appearance of the arteries as in the former case. But what I had taken to be an ossification of the vessel itself, Mr. P. discovered to be a kind of firm, fleshy tube, formed within the vessel, with a considerable quantity of ossific matter disposed irregularly through it. This tube did not appear to have any vascular connection with the coats of

the artery, but seemed to lie merely in simple contact with it.

"As the heart, I believe, in every subject that has died of the angina pectoris, has been found extremely loaded with fat, and as these vessels lie quite concealed in that substance, is it possible this appearance may have been overlooked? The importance of the coronaries, and how much the heart must suffer from their not being able duly to perform their functions (we cannot be surprised at the painful spasms), is a subject I need not enlarge upon, therefore shall just remark that it is possible that all the symptoms may arise from this one circumstance.

"As I frequently write to Mr. H., I have been some time in hesitation respecting the propriety of communicating the matter to him, and should be exceedingly thankful to you, sir, for your advice upon the subject. Should it be admitted that this is the cause of the disease, I fear the medical world may seek in vain for a remedy, and I am fearful (if Mr. Hunter should admit this to be the cause of the disease) that it may deprive him of the hopes of a recovery."

And in another letter Jenner says—"Soon after Mr. Paytherus met with a case. Previous to our examination of the body I offered him a wager that we should find the coronary arteries ossified. This, however, proved not to be exactly true; but the coats of the arteries were hard. . . . At this time my valued friend, Mr. John Hunter, began to have the symptoms of angina pectoris too strongly marked upon him; and this circumstance prevented my publication of my ideas on the subject, as it must have brought on an unpleasant conference between Mr. Hunter and me." And although neither Clive nor Everard Home would condescend to adopt his views at first, we are told that—"When, however, Mr. Hunter died, Mr. Home very candidly wrote to me, immediately after the dissection, to tell me I was right."

In the year (1775) before Jenner had communicated his letter to Heberden, Dr. Fothergill had been treating a victim of angina pectoris, and "in the evening, in a sudden and violent transport of anger, he fell down and expired

immediately." A *post-mortem* examination was made "by that very skilful and accurate anatomist, John Hunter, F.R.S.;" and "the two coronary arteries, from their origin to many of their ramifications upon the heart, were become a piece of bone."

In his post-graduate lectures of last year Professor Osler, of the Johns Hopkins University, has given an excellent summary of the present state of our knowledge of the morbid anatomy of angina pectoris. The great authority on the statistics of this subject is Huchard. "In a supplementary chapter to his work you will find a summary of 145 autopsies in cases of angina, gathered from the literature. In 17 cases there was mention only of a lesion of the coronaries without further specification; of 128 there were 68 with lesions of both coronary arteries, 37 of the left vessel, 15 of the right, and in 12 the seat of the lesion was not stated. In the 128 cases obliteration or stenosis of the vessels had occurred, and of these in 121 there was atherosomatous narrowing or thrombosis, in 5 embolism, and in 2 compression. Fatal cases are on record in which the coronary arteries have been found normal; most of these are instances of adherent pericardium or valvular disease." It is hardly necessary to dwell further on the still unsatisfactory state of our knowledge of the morbid anatomy of a very important condition.

The pain—the urgent symptom—in angina pectoris has not, to my mind at least, been ever quite satisfactorily explained. The old idea, that it was due to cramp of the cardiac muscle, may account for that portion which is localised in the praecordial area, and has been of recent years advocated with characteristic argumentative power and lucidity of expression by Dr. Goodhart, of Guy's Hospital. But this cannot account for the central focus of mid-sternal pain, which I have always observed to be the most severe, and which was so in the experience of Heberden himself. Wall, whose paper I have already quoted, and who was one of the earliest followers of Heberden, in contributing to the literature of this subject, attempted to account for the humeral pain, which is generally so prominent a characteristic of a paroxysm of

angina. "It may be difficult to account satisfactorily for the symptom above taken notice of, when the pectoral muscle is so particularly affected; but this appears to be merely spasmodic, and to arise from an irritation on the nerves of the thorax and heart. Perhaps it may throw some light on this affair, to consider that the *nervi intercostales*, or *sympathetici*, distribute many branches to the heart, *arteria pulmonalis*, and aorta; the other branches of the same nerves surround the subclavian arteries and veins, and communicate with the *cervicales*, which latter terminate at the insertion of the deltoid muscle into the *os humeri*, which is precisely the place affected by the spasm already mentioned."

Erasmus Darwin, in his description of the anginal paroxysm, observes that—"A pain in the arms, about the insertion of the pectoral muscle, generally attends, and a desire of resting by hanging on a door or a branch of a tree by the arms is sometimes observed." His theory of the phenomenon, which he puts forward elsewhere, is as follows:—"As a principal branch of the fourth cervical nerve of the left side, after having joined a branch of the third and of the second cervical nerves, descending between the subclavian vein and artery, is received in a groove formed for it in the pericardium, and is obliged to make a considerable turn outwards to go over the prominent part of it, where the point of the heart is lodged, in its course to the diaphragm; and as the phrenic nerve of the right side has a straight course to the diaphragm, and as many other considerable branches of this fourth pair of cervical nerves are spread on the arms, does not a pain in the left arm distinguish a disease of the pericardium, as in the angina pectoris, or in the dropsy of the pericardium? and does not a pain or weakness in both arms distinguish the dropsy of the thorax?"

(*To be continued.*)

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

A System of Dental Surgery. By the late SIR JOHN TOMES, F.R.S. Revised and enlarged by CHARLES S. TOMES, M.A., F.R.S. London: J. & A. Churchill. Fourth Edition. 1897. 8vo. Pp. 717.

TEN years have now elapsed since the issue of the third edition of this well-known dental classic, and the appearance of a fourth will, we have no doubt, be hailed with satisfaction throughout the dental world. Unfortunately, however, that decade has seen pass away the distinguished original author of this work, Sir John Tomes—a man who did for the dental profession more than seemed possible for any one individual to accomplish. His son, Mr. Charles Tomes, now brings forward this edition, much of the original text remaining intact.

The development of the jaws and teeth, normal and abnormal dentition, constitute the subject-matter of the first three sections, in which those familiar with the book will not find much change made, excepting the introduction of a useful diagram at the end of the second of these sections, illustrating the stages of development of the individual permanent teeth at various ages. Next follows a relatively exhaustive chapter upon dental irregularities, the treatment of which is gone into with, perhaps, not quite such fulness as one might expect, but then Mr. Tomes states that he wishes merely “to retain such points of manipulative detail as involve or illustrate general principles.”

Structural defects in teeth are then brought before the reader's notice; and here are summarised the results obtained by the modern researches of the reviser and Dr. Black. Some excellent micro-photographs find a place here, as in the chapter which follows upon dental caries. The treatment of the latter disease is then considered at some length,

the theory as to its chemico-parasitic origin being now well recognised, while a useful addition is made in the shape of some formulæ for antiseptic mouth-washes. Treatment of exposed pulp receives a large amount of attention, and, we would say, deservedly so, because, as is pointed out in this edition, the conservative treatment of such cases has of late years come to assume a more hopeful aspect. Here, again, very beautiful micro-photographs considerably enhance the context. A separate notice has been accorded to the various antiseptics of use in dentistry, and perusal of the same will teach much of their respective merits and demerits. Alveolar periostitis, diseases of the antrum of Highmore, and various morbid conditions of the teeth themselves—exostosis, necrosis, erosion, &c.—receive attention next. Here, as elsewhere, much is told in a comparatively brief space and with clearness. Touching upon anaesthesia, a warning is issued as to the grave risks attending the use of chloroform in ordinary dental operations, which will doubtless be endorsed by most dental practitioners.

The chapter upon odontalgia and neuralgia is full of instructive facts, and would well repay study on the part of medical men interested in the latter distressing series of symptoms.

The reflex affections due to dental irritation are next given a place, and in discussing these it is evident that much forethought and study have been expended. In the remaining pages the more surgical aspects of dentistry are tabulated—odontomes, cysts, hypertrophies of the jaw, and inflammations occurring within the oral cavity—while methods of both diagnosis and treatment are discussed.

We are glad to see the names of two Dublin practitioners finding places in the book—that of Mr. W. B. Pearsall, in connection with the so-called oblique rooted molar described by him, and Dr. A. W. Baker, in reference to an excerpt from an article in one of the journals by him, relating to success met in treating roots with corrosive sublimate without extirpation of the pulp.

To those familiar with this work, the form in which it is now published may seem a little strange, the edition at hand being less bulky while slightly larger than those preceding

it—to our mind a change for the better. The printing, binding, and general details of the work leave nothing to be desired, while the photographs before referred to are excellently reproduced. The book has our best wishes, and we believe it still holds that position which it has held in the past—*par excellence* the manual for use among students and practitioners of dental surgery.

Saint Thomas's Hospital Reports. New Series. Edited by DR. T. D. ACLAND and MR. BERNARD PITTS. Volume XXIV. London: J. & A. Churchill. 1897.

NOTHING more forcibly tells the great part medicine plays in the unceasing contest against pain, mental and physical, than the Reports of our London hospitals. To realise the beneficent labours of medicine we have only to imagine the immense multitude of pain-stricken individuals which fill our hospitals if left without medical aid.

The Report before us tells that in St. Thomas's Hospital during 1895 there were 3,365 surgical cases treated; of these 2,358 were cured and 590 relieved. Of medical cases 1,916 were treated; of these 892 were cured and 566 were relieved. But this does not show the whole of the work done by the hospital, for there are the special departments in which a large amount of good work was done. In all these statistics—and they are numerous and carefully prepared—there is one defect. We hear nothing on the very important question of anaesthetics; it would not be difficult to mark after each operation what anaesthetic agent was used and why it was selected. The interests of the medical profession require such information, and until it is furnished the report cannot be considered to be wholly satisfactory.

Of the contributions to the number—all of which are of a high standard of excellence—we desire to draw attention to two—"On the Occurrence of Relapse in the Specific Fevers." by Dr. Caiger, which is pregnant with good, and its substance is pretty certain to be embodied in future text-books. It is a paper from a practical physician—one which should be read by all practitioners, and one which

plainly proves that a physician may be deeply read in medicine and withal a practical man at the bedside.

The second paper is a report on localised softening of the medulla following on thrombosis of the left vertebral artery. It is a good specimen of a purely clinical paper, evidencing how much the symptoms may tell to the trained observer. As long as our great London hospitals continue to produce Reports such as this of Saint Thomas's we can have no dread for the future of British medicine. The student of medicine can have no better study for practical purposes than these Reports, where he finds thousands of cases classified and arranged for his convenience, and the clinical and other notes given with a fulness which enables him to pass under review the workings of a great medical school and learn the methods of treatment which find most favour with the leaders of the medical profession.

A Short Practice of Midwifery. By HENRY JELLETT, B.A., M.D. Dublin, &c.; Assistant Master, Rotunda Hospital. London: J. & A. Churchill. 1897. Pp. 311.

A PLEASING task is in store for the reviewer of this book, which reflects much credit on the author, who has found time to write it in the midst of the many and responsible duties connected with his position in the Rotunda Hospital.

For the first time in many years the maternity methods of the Rotunda Hospital, which have gradually been evolved and have become crystallised under the successive Masterships of Drs. Atthill, Macan, and Smyly, are given to us in a succinct form and by a writer whose position entitles his statements to be stamped with the Hospital seal. The opening sentences of this Midwifery are so important that we deem it necessary to reproduce them in the author's own words:—

“It is not an exaggeration to say that the most essential knowledge in midwifery is the knowledge of asepsis. A practitioner who knows nothing of the science and art of midwifery except that it is absolutely necessary that his hands and instruments be sterile will save more lives than the most accomplished obstetrician who does not practise asepsis.”

This statement will be considered by many somewhat overdrawn, but nevertheless it serves to enforce at the very outset the principle of surgical cleanliness which constitutes the keynote of the whole book.

The barriers which nature affords against germ invasion are well described, and there is a warning voice raised against meddlesome interference by means of douches, &c., with normal processes.

Chapter III. deals with the signs of pregnancy, and contains many valuable and but little known early indications of that condition. In writing of normal labour the author has really omitted nothing of importance. Abdominal palpation receives the prominence it deserves. The Rotunda method for supporting the perinæum is clearly described; and the conduction of the 3rd stage is written about in a lucid manner. These latter sections will no doubt be taken note of, as the plans described have been those practised for over half a century in the Dublin School.

In dealing with accidental haemorrhage, Dr. Jellett, following the teaching of his hospital, advocates as treatment tight vaginal plugging; and we only trust that his book may have the effect of causing this plan to be more generally adopted.

Skutsch's methods for obtaining accurate internal measurements of the pelvis, together with a good description of his pelvimeter, are not forgotten; and the prominence the subject receives in the book before us must be fraught with good results. Considering the modest size of the book our readers will not be surprised to hear that theoretical considerations are in a great measure avoided. It nevertheless teems with information of a practical kind, and this is conveyed to the reader in the form more of clinical lectures than in that which we are accustomed to find in works of this sort.

Puerperal sepsis is one of the many good chapters of this manual, and the subject is dealt with in a way that ought to enable the student to recognise and deal with the disease wherever and whenever he encounters it.

The Appendix consists of carefully drawn up tables showing the nature and number of cases treated in the

Rotunda Hospital during the Mastership of Dr. W. J. Smyly. The name of the late Master is alluded to in a grateful manner in Dr. Jellett's preface, and a short preface from Dr. Smyly's own pen graces the first pages of the book.

It will cause us much surprise if the first edition of this little work is not soon exhausted, and when the second appears we trust that the author's time will enable him to add to and enlarge the work he has already with so much success taken in hands.

A Pictorial Atlas of Skin Diseases and Syphilitic Affections.
Edited and annotated by J. J. PRINGLE, M.B., F.R.C.P.
Part IX. London : The Rebman Publishing Company.
1897.

THE ninth fasciculus of this beautiful Atlas contains four plates with their accompanying letterpress. The subjects illustrated are—squamous eczema (keratodermic eczema), described by M. L. Jacquet; pustular scabies, by Henri Feulard, whose life was so tragically terminated in the disastrous fire at the Charity Bazaar, Paris; disseminated lupus-pernio, affecting the ears, upper extremities, and centre of the face, with tuberculous synovitis, by Dr. Ernest Besnier; and gummatous tuberculous lymphangitis, secondary to tuberculous dactylitis, by George Thibierge.

Dr. Pringle has again done his part of the work well, and we offer him our félicitations.

Diphtheria and Antitoxin. By NESTOR TIRARD, M.D. Lond., F.R.C.P.; Professor of Materia Medica and Therapeutics at King's College, and Physician to King's College Hospital; Senior Physician to the Evelina Hospital for Sick Children. London : Longmans, Green & Co. 1897. Pp. 141.

WE have read this book with much pleasure. It is a work produced by the experience of a fair-minded and observant physician. Thus, Dr. Tirard draws largely upon his own experience of diphtheria, and illustrates his points by notes of cases taken from his wards. He does not appear to be anxious to develop or maintain any special theory—we

had almost, from our experience of other works, written *fud*; but his aim is to describe diphtheria as the disease has presented itself to him, and to record the results he has obtained from the use of antitoxin. At the same time we must say that the book is incomplete as a monograph on diphtheria, inasmuch as it treats the disease solely from a clinical point of view.

On the subject of the causation and spread of diphtheria, Dr. Tirard has not much to say that is new; he quotes extensively from Dr. (now Sir Richard) Thorne's well-known work on this subject. Chapter II. gives a good account of the symptoms of diphtheria, into which, as indeed is the case throughout the work, notes of many illustrative cases and temperature charts are introduced. Dr. Tirard is inclined to attach considerable weight to the early loss of knee-jerk as a diagnostic help. Then the complications and the prognosis of the disease are discussed. Dr. Tirard is emphatic on the slight importance of albuminuria in diphtheria, both from the standpoint of diagnosis and from that of prognosis.

The description of diphtheritic paralysis is careful, but seems to us to be somewhat disconnected, so that it is not easy to obtain a clear description of the ordinary features of the malady.

With regard to treatment, Dr. Tirard has strong belief in the merits of antitoxic serum, which, he says in the preface, seems to have robbed diphtheria of most of its terror. His practice is to give a dose corresponding to 1,000 units of immunity; this dose is usually sufficient. If needed, it is repeated two or three times, commonly at intervals of 24 hours. He has never observed any ill effects from its use. He urges, rightly as we think, that in every doubtful or suspected case the antitoxin be injected without waiting for bacteriological examination to settle the diagnosis.

As regards tracheotomy and intubation in laryngeal diphtheria, the author seems rather to prefer tracheotomy when the question is considered apart from the use of antitoxin; but his feeling is that if intubation is performed early and antitoxic serum injected at the same time there

is less likelihood of the membrane extending down the trachea, and the portions of membrane already formed will soon soften and become detached. Cases in which intubation has been done require just as careful attention and nursing as do those in which tracheotomy has been performed.

As we have before said Dr. Tirard treats diphtheria exclusively from the clinical standpoint. We think it a pity that in a work otherwise so complete there is no mention even of the pathology and morbid anatomy of the disease. An account of Löffler's bacillus, and of the *post-mortem* appearances in fatal cases, would not have been out of place. We are not even able to find that the cause of the paralysis is given—neuritis does not seem to be mentioned.

However, from a purely clinical point of view, the book is well written ; and as such we recommend it.

Gout and Goutiness, and their Treatment. By WILLIAM EWART, M.D. Cantab., F.R.C.P., &c.; Physician to St. George's Hospital and to the Belgrave Hospital for Children; formerly Assistant Physician and Pathologist to the Brompton Hospital for Consumption. London: Baillière, Tindall & Cox. 1896. Pp. 589.

SOME years ago a work appeared, entitled "Gout in its Protean Aspects," the word "protean" referring to the manifold phenomena caused by gout in those affected by the disease. The work before us might well be called "Gout in its Protean Aspects," but in this case the adjective would refer to the multitude of views, theories, and speculations as to gout that have been put forward by writers of various ages and different countries. Dr. Ewart's intention seems to have been to reconsider our principles of treatment ; and to do this the more completely he has discussed the subject of gout in its entirety, giving an account of the views that have been entertained by others as well as his own personal opinions. From the number and the frequent divergence of the opinions held on the subject, it follows that a great portion of this work

consists of *résumés* of various writers' opinions. We regret that Dr. Ewart has not more fully stated his own views, and given us a more connected and uniform work on the subject. All the views mentioned cannot be correct; yet we often find it difficult to distinguish those which the writer (or, shall we say, the compiler?) personally approves from those which do not commend themselves to him.

The work is divided into ten sections. In the earlier divisions the Theories of Gout, its Chemistry, Pathology, and Morbid Anatomy are treated of. The works of Sir W. Roberts and Sir A. Garrod are very largely referred to; but Dr. Ewart's industry is proved by the large number of writers, both British and foreign, whom he quotes.

The description of the clinical symptoms of gout is careful—indeed, minutely so. To our mind, it suffers from its minuteness and excess of details. We have a laborious and complete account of all the symptoms observed by various physicians; but we fail to perceive a clear and definite picture of the ailments from which Dr. Ewart's own patients have suffered. At the same time, this mass of details is in itself very valuable for purposes of reference. If we want to know, for example, what Rendu thinks of acne in gouty subjects, or what Sir Dyce Duckworth writes about subcutaneous nodules, or what Guéneau de Mussy's views on gouty tonsillitis are, we have only to refer to Dr. Ewart's work.

The section on treatment is very full, occupying over 250 pages. Its character resembles that of the other sections of this work—*i.e.*, it contains the views of a very large number of physicians. What we miss in many places is Dr. Ewart's own mode of treatment. He often gives us our choice of remedies, and leaves us there. Thus, in the chapter on the treatment of gastric catarrh we read—“Gastric and intestinal antisepsis is of primary importance. For this we have a choice of new remedies, including β -naphthol, benzo-naphthal, salol, and resorcine. The older preparations, such as sodium hyposulphite, sulphur (in tabloids), creosote (in capsules), and mercurial preparations (in pill), will often prove most effectual.” Surely Dr. Ewart's experience must have led him to favour cer-

tain of these drugs more than the others; if so, however, we are not entrusted with the secret.

The last sections of the book treat of baths and medicinal waters (including those of North America and New Zealand), and of the treatment, dietetic and medicinal, of chronic gout.

This work has many good points: it contains a vast deal of information on the subject of Gout and Goutiness; it will often be found useful as a book of reference, but still to our mind it falls short of being a really great book on the subject.

Burdett's Hospitals and Charities, 1897: being the Year-book of Philanthropy. By HENRY C. BURDETT. London: The Scientific Press (Limited). 8vo. Pp. 918.

THE most interesting chapters in the volume before us will probably be the first, second, and third. The first gives an instructive summary of the beneficent reign of the Queen, particularly in relation to public charities and the development of hospital work in the past sixty years. The second chapter describes the Prince of Wales's Hospital Fund for London, and gives a comprehensive alternative scheme, showing what might be done in London if £150,000 a year could be raised. An account of Hospital Construction in 1896 is given in chapter III., with free criticisms by the author.

The work is brought out on the usual lines, and contains a storehouse of authentic information on all points connected with hospital management and finance.

The Royal Navy. By a LIEUTENANT, R.N. With a preface by Admiral of the Fleet, SIR J. E. COMMERELL, V.C., G.C.B., R.N. London: Swan Sonnenschein & Co. 1897. Pp. 126.

APPROPRIATELY published almost on the eve of the Queen's Diamond Jubilee celebration, this attractive history and description of the Royal Navy cannot fail to become a popular book. It is cheap, is beautifully printed on

excellent paper, and is profusely and artistically illustrated with photographs and wood-engravings.

The scope of the work will best be understood from the table of contents. There are separate chapters on the naval history of the British Empire from its dawn to the present day, on naval administration, on the different classes of ships in the navy, on armament, torpedoes, &c., on the personnel of the Royal Navy, and on commissioned ships, &c. The work concludes with a short but useful bibliography. At page 97 there is a brief account of the Medical Department of the Service.

For the financial year 1896–97 the number of the officers and men voted for the Royal Navy amounted to a grand total of 117,671. This includes coastguard and Royal Naval Reserve. Such is the first line of defence which guards the British Empire.

Archives of Skiagraphy. Edited by SYDNEY ROWLAND, B.A. Camb. London : The Rebman Publishing Company. No. 4. Vol. I. April, 1897.

THERE are six plates in this fourth fasciculus of the Archives of Skiagraphy. Plate XIX. illustrates two cases—one of advanced and permanent talipes plantaris and calcaneus of the left foot, the other of dislocation of the elbow six weeks after the injury. Plate XX. shows an example of multiple osteoma and a case of fracture of the radius and ulna, with dislocation of the radius backwards. Plate XXI. shows well the relation of parts in congenital dislocation of the left hip in a girl aged 7 years.

The remaining plates in the fourth number illustrate the applications of skiagraphy to zoology. The skiagrams are by Dr. R. Norris Wolfenden, B.A., M.D. Cantab.

Plate XXII. represents the skiagram of the common lobster (*Homarus vulgaris*), taken from above, and with an exposure of three minutes, using a ten-inch spark coil and Watson's new palladium tube. The edible crab (*Cancer pagurus*) is "skiographed" in Plate XXIII., and so is the hermit crab (*Eupagurus Bernhardus*) in Plate XXIV. A third section of this plate shows a series of ray records for

the cinematograph, taken from the frog's leg by Dr. John Macintyre, of Glasgow. On the whole, these zoological skiagrams are disappointing, while the pathological appearances are well brought out in the clinical series.

The Edinburgh Medical Journal. Edited by G. A. GIBSON, M.D., F.R.C.P. Ed. New Series. Vol. I. Edinburgh and London: Young J. Pentland. 1897. 8vo. Pp. 692.

ALTHOUGH the *Edinburgh Medical Journal* is on our exchange list, Mr. Pentland has courteously presented us with a bound copy of the first volume of the new series of the journal, which has been brought out under the editorship of Dr. George A. Gibson.

We heartily congratulate the Edinburgh school, the editor, and the publisher alike, upon the appearance of the volume, and upon the high-class material which its pages contain.

Writing in Dublin, we are pleased to find an excellent and thoughtful paper on the course of the taste fibres from the tongue to the brain, from the pen of our gifted young fellow-countryman, Dr. A. Francis Dixon, who has lately left his native city to take up professorial work at the University College of South Wales and Monmouthshire, Cardiff.

Antiseptic Principles for Nurses. By C. E. RICHMOND, F.R.C.S.; Honorary Surgeon, Ancoats Hospital, Manchester; Honorary Surgeon, Warrington Infirmary. London: J. & A. Churchill. 1897. 8vo. Pp. 47.

THE reason *why* is here considered in a very satisfactory manner, and much useful information has been condensed for the use of nurses. Microscopic cleanliness and the reasons for it are clearly set forth, the germ theory of disease being explained with special reference to morbid influences acting on wounds, antiseptic treatment and aseptic dressings being enjoined in every case, to render innocuous and to prevent the entrance of the harmful

microbes floating around us. A chapter is devoted to the consideration of these organisms, and their dissemination, showing the wonderful rapidity of their multiplication in favourable surroundings, and the absolute necessity there is for combating their inroads. The new oxygen treatment of wounds is hinted at in the last chapter.

These pages will prove valuable as a handy text-book to the busy nurse and to the many who wish for more light, and who are not within reach of the advanced lectures now given to nurses in all our large centres by physicians who are eminent as specialists in the several subjects upon which they lecture.

NEW ANTISEPTIC SOAP.

DR. CHARLES T. M'CLINTOCK has succeeded in making (*Medical News*, New York, April 17, 1897) a strong antiseptic soap, which, when in use, does not precipitate the antiseptic. Dr. M'Clintock uses the double salt of mercury and potassium iodide in from $\frac{1}{2}$ to 2 per cent. strength. He comes to the following conclusions :—(1) In proportion to the amount of antiseptic contained this soap is at least five times as strong as any known germicide. A one per cent. solution of the soap, 1-500 of mercuric iodide, is at least equal to 1-1000 mercuric chloride. (2) As it would ordinarily be used, it is at least as strong as any germicide in common use; i.e., he believes that if a wet cake be rubbed over the hands the layer of soap next the skin will be at least a one per cent. solution, and, as the tables show, this is at least as strong as 1-1000 mercuric chloride. (3) It does not coagulate albumens or attack nickeled or steel instruments. It does not seem to have any action on lead, and so will not injure waste pipes. (4) It will attack silver and aluminium instruments.

THE RÖNTGEN RAYS.

DR. JAMES SWAIN publishes (*Bristol Medico-Chirurgical Journal*, March, 1897) a paper on the effect of the Röntgen rays on calculi. It is illustrated by a good series of plates which show that the resistance to the passage of the rays is not always in direct ratio to the specific gravity. A case is appended in which a skiagram of a renal calculus was obtained in the living subject; in this case the calculus was "white" or "crystalline" oxalate of lime.

PART III. MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ANATOMICAL SOCIETY OF GREAT BRITAIN AND IRELAND.

THE Summer Meeting of this Society was held in Trinity College, Dublin, on June 10th and 11th, under the presidency of Prof. G. D. Thane, who was in the chair, and the following foreign guests were present:—Prof. Waldeyer, Berlin; Prof. His, Leipzig; Prof. Leboncq, Ghent; Prof. Disse, Marburg; Dr. Otis, Boston, U.S.A.; Prof. Spalteholz, Leipzig; Dr. de Bruyne, Ghent; Dr. Frohse, Berlin; and Dr. Kæstner, Leipzig.

On June 10th, at 10 a.m., after the election of seven new members, the following communications were made:—

Dr. T. H. Bryce, Glasgow—"A pair of Negro Femora, the left showing a remarkable Development of the Popliteal Surface."

Prof. Spalteholz, Leipzig—"Stereoscopical Photographs of the Arteries in the Human Skin."

Prof. Leboncq, Ghent—"The Ossification of the Terminal Phalanges of the Fingers in relation with Hyperphalangy."

Prof. Birmingham, Dublin—"Models of the Abdominal Viscera."

Dr. Kæstner, Leipzig—"Specimens of Malformed Chick Embryos."

Prof. Sir Wm. Turner, Edinburgh—"X-Ray Photographs of Injections of the Arteries of the Limbs and Kidneys."

Dr. Otis, Boston, U.S.A.—"On the Structure of the Rectum."

Prof. A. Macalister, Cambridge—"Study of Australian Brains."

Mr. J. Cantlie, London—"The Position of the Gall Bladder."

Prof. R. Howden, Durham—"A case of marked Distension of the Colon."

Prof. Redfern, Belfast—"The Development and Nutrition of Bone and Cartilage."

In the afternoon, at 2 30, the following communications were made:—

Prof. Windle, Birmingham, and Mr. Parsons, London—"The Nomenclature of Comparative Myology."

Prof. Anderson, London—"The Peritoneal Relations of the Sigmoid Flexure of the Colon."

Prof. Disse, Marburg—"The Development of the Olfactory Nerve in Birds."

Prof. Spalteholz, Leipzig—"Reticulated Tissue in different organs."

Prof. Dixon, Cardiff—"Development of the Eye-muscle Nerves in Mammals."

Prof. Cunningham, Dublin—"The Development of the Fissure of Rolando and the Calcarine Fissure."

On Thursday evening a banquet was given by the President of the Royal Academy of Medicine in Ireland—Dr. James Little—in the Royal College of Physicians of Ireland.

On Friday, June 11th, a breakfast was given by Profs. Cunningham and Birmingham in the Gardens of the Royal Zoological Society of Ireland, in the Phœnix Park. Afterwards the following communications were made:—

Prof. v. Bardeleben, Jena, and Dr. Frohse, Berlin—"The Finer Ramifications of Nerve-filaments supplying Muscle."

Dr. C. J. Patten, Dublin—(1.) "Two Curious Modifications of the Lower Jaw." (2.) "Cervical Vertebra in which the Laminæ had not fused."

Prof. Cunningham, Dublin—"Models and Specimens of the Kidneys."

Dr. Elliot Smith, Sydney—"The Morphology of the Fornix and Margin of the Cerebral Cortex."

Dr. W. Smyth, Belfast—"Absence of Pectoralis Major in a Living Boy."

Dr. de Bruyne, Ghent—"Adaptation fonctionnelle de la Phagocytose."

Prof. Waldeyer, Berlin—"Topographical Anatomy of the Pelvic Wall, with special reference to the position of the Ovary."

Mr. Booth Pearsall, Dublin—"On the Linear Determination of the Human Tooth Form."

Dr. W. S. Haughton—"X-Ray Photography applied to Anatomical Investigation."

Prof. Cunningham, Dublin—"Note on Cape Hunting Dogs."

Prof. Windle, Birmingham—"Priestly Smith's Formol Method of Mounting Eye Specimens."

Prof. Howden, Durham—"A case of Bifid Scrotum."

In the evening a dinner was given by the Senior Fellows of Trinity College.

On Saturday, June 12th, a party of twenty-four went to the Lakes of Killarney, in the Co. Kerry, under the leadership of Dr. W. S. Haughton, the Local Honorary Secretary of the meeting.

Antitoxin in the Treatment of Tetanus.^a Two Cases translated from Gaceta Médica de Costa Rica. By GEORGE FOX, F.R.C.S.I.; M.D. (Hon. Causâ) U. C. Va.; Hon. Fellow of the Southern Surgical and Gynecological Association, U.S.A.; Surgeon to the Whitworth Hospital, Drumcondra.

THE first case, Dr. Cereignani's, was that of Maria Giovannelli who, whilst cutting bread, on the 18th of December, 1895, wounded her left hand. To stop the bleeding some spider's webs and a firm bandage were applied. Four days afterwards she complained of severe lancinating pains in the wound, and a doctor was called in.

On removing the bandage brisk arterial bleeding commenced, and an attempt to catch and secure the bleeding vessels failed, owing to the brittleness of the arterial walls, which broke down under the forceps. Ligature of the radial was now proposed and accepted. The artery was tied, and the wound in the hand was afterwards thoroughly washed with a solution of corrosive sublimate, and the sides brought together with a deep suture, the part being freely dusted with iodoform.

Four days afterwards—that is to say, the eighth day after the injury—the wound presented nothing abnormal, except a slight point of suppuration by the side of the suture, but the patient felt a little pain in the left arm and some difficulty in opening her mouth. The doctor removed the suture, washed the wound with corrosive sublimate solution, and told the family that the case was probably one of tetanus. The day following the patient was fairly well, but on the morning following the doctor was told that she was worse, and could not open her mouth.

On arrival the doctor had no difficulty in recognising a well-marked case of tetanus. The temperature in the arm-pit was 103·5°, with complete trismus, difficulty of breathing, difficulty of swallowing, and difficulty in speaking. She had opisthotonus and complete rigidity of the muscles of the neck and dorsal region, without power to move the head or trunk, and, lastly, violent convulsions, during which she screamed loudly.

Ordered absolute quiet, darkened the room, and gave clysters of chloral of 10 to 15 gramme doses, and hypodermics of morphia, and, at the same time, telegraphed to Professor Tizzoni for anti-toxin.

On the following morning, the 28th of the month, the temperature in the arm-pit was 101°, and the patient complained of a pain,

^a Copied from Fernando Iglesia's article in *Riforma Medica*.

extending from the thorax to the pelvis, which encircled the body.

It is worthy of note that the woman was near the full term of her pregnancy, and already her labour was commenced and she had no power to complete it; happily the case ended favourably, and a healthy child was born, which gave no sign of any tetanoid trouble.

The day following the patient was much in the same condition, the temperature remaining steady. Early in the day Professor Tizzoni came from Bologna. Having examined the wound he washed it with a one in a thousand solution of corrosive sublimate, and afterwards with a one per cent. solution of nitrate of silver. He gave a hypodermic injection of 20 c.c. of anti-tetanic serum in the left side, and a similar hypodermic injection in the right side. The hypodermies were followed by a slight pruritus, and this was succeeded by an erythema, which lasted for a few hours. Contemporaneously with these injections he gave hypodermics of morphia, clysters of chloral; and for nutriment gave elysters of peptonised broth, milk, and eggs, for the patient was unable to swallow.

Following day, December 30th, the patient's condition unchanged; temperature, 100°–102°; hypodermics of the serum (10 c.c.) night and morning.

December 31st.—Hypodermics of antitoxin in gramme doses night and morning; temperature, 99·4°–100°.

January 1st, 1896.—Hypodermics of a gramme of antitoxin night and morning; temperature, 99°–100°.

January 2nd.—Gramme doses of the antitoxin hypodermically as before; temperature as day before; the patient better; convulsions not so frequent nor so violent; sweating freely.

No change from the 3rd to the 6th of the month.

January 7th.—Dose of antitoxin reduced to half a gramme twice daily; patient better; convulsions have diminished from seventy to thirty in the hour.

From the 8th to the 27th of January one gramme of antitoxin was injected; patient markedly better, and was able to eat a little; the convulsions have diminished from thirty to twelve in the hour.

After the 18th the dose of antitoxin was reduced 25 c.c., and daily the patient improved until the 1st of February, when she was declared to be completely cured.

The second case is that of Dr. Rabbitti, whose patient, Anibal Proldi, nineteen years old, received a wound from a musket on the dorsum of the left foot. The wound gradually cicatrised, until

the 2nd of March—he complained of no pain, and felt no inconvenience. This condition of affairs remained unchanged until the 20th of the month, on which day the man noticed a slight difficulty in opening his mouth, and complained of constipation and pain in his belly. On the 27th all the symptoms of tetanus were present. When questioned the man told that when wounded he covered the wound with snow, gathered close to a dung-hill, to ease the pain. The ordinary treatment of chloral and morphia was resorted to, and Professor Tizzoni was asked to send some antitoxin. On the 29th of March two grammes of antitoxin, in divided doses, were injected round the wound. Two hours afterwards the man complained of a sensation of warm liquid circulating in his foot, and of its escape as gas.

This sensation lasted an hour, and was followed by one quite as extraordinary; he complained of his leg feeling as if it would burst, and this bursting feeling gradually passed to the thigh, and finally rose to the belly and chest. He passed a restless night, being deeply agitated with subjective sensations. The 30th of March he suffered from dyspnoea and strong contractions of the abdominal muscles. By means of clysters the patient had two full stools; temperature, 101·4°.

March 31st.—Injected one gramme of antitoxin, after which all the nervous symptoms became intensified, the difficulty of respiration passing to the production of orthopnoea. The pulse became intermittent; a great sweat broke out, and the pupils became immovable; temperature, 102°.

April 1st.—The grave state of the patient caused an unfavourable prognosis.

April 2nd.—The spasm of the diaphragm slightly diminished in intensity; orthopnoea not so acute. Complains of spasms of the muscles of the left leg, and of a violent pain in the sole of the left foot, where, some fluctuation being detected, the part was incised, and a small quantity of pus was let out. The relief from pain was very marked, and the temperature fell.

April 3rd.—Patient suffers from difficulty of micturition and muscle spasm, conditions which disappeared on the discontinuance of the hypodermics of morphia. Sweating copiously; temperature normal.

April 4th.—Dyspnoea diminished, and the patient is able to sleep lying down.

April 5th.—Diminution of the trismus and contraction of the muscles of the neck; but the difficulty of micturition has returned. The neck of the bladder is strongly contracted, and catheterism is

impossible. After the application of warm poultices and rubbing with belladonna ointment the patient passed a great quantity of water.

From this date the patient made an uninterrupted recovery.

RAPID STERILISATION OF WATER.

BROMINE added to water will kill all the pathogenic germs in it in five minutes, and the addition then of ammonia will neutralise the bromine. Schumburg, who makes this announcement in the *Deutsche med. Woch.* of March 4, has tested the process 200 times with river water at Berlin, to which germs of all kinds had been added, including cholera and typhoid germs. He uses 0·2 c.c. of the following solution:—Water, 100; bromine, 20; potassium bromide, 20 for each litre, and then neutralises it with an equal amount of 9 per cent. ammonia. The water is then perfectly clear, the taste is scarcely altered at all and the amount of bromine salts remaining in it is so small—0·15 per litre—that they do not affect the taste nor health. Marsh and other water containing ammonia requires a little more bromine to counteract it. He recommends the process as rapid, effective and cheap for sterilising water for drinking in the army and on board ship, in unhealthy localities and for medical and surgical purposes.—*Jour. Am. Med. Assoc.*

NEW YORK DISPENSARIES.

DR. BROUNER, of New York, has reprinted from the *Medical Record* his paper on the use and abuse of the city dispensaries. The profession in New York is wakening up to the importance of the subject. Forty-four institutions "treated 707,058 patients (who made in all an average of less than three visits to each patient), for whom 1,039,632 prescriptions were filled, for which a fee ranging from 10 to 25 cents was charged in the vast majority of cases." "In one of the so-called poor institutions I was told that on a conservative estimate at least forty per cent. of those treated were able to pay a doctor. Indeed, it is not a novel experience for one to meet at the theatre or out riding on a wheel the very patients who were too poor, forsooth, to pay a doctor, and hence availed themselves of dispensary treatment. In the clinic in which I am an assistant it is not an unusual thing for men to ask if their urethral or prostatic trouble would be aggravated by the use of a bicycle; indeed one patient had the temerity to ask me if horseback riding was likely to prove injurious! And so I might go on citing instances *ad infinitum.*"

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—JAMES LITTLE, M.D., F.R.C.P.I.

General Secretary—JOHN B. STORY, M.B., F.R.C.S.I.

SECTION OF SURGERY.

President—WILLIAM THOMSON, President of the Royal College
of Surgeons in Ireland.

Sectional Secretary—JOHN LENTAIGNE, F.R.C.S.I.

Friday, March 5, 1897.

The PRESIDENT in the Chair.

On Cases of Nephro-lithotomy and Nephrectomy.

MR. MYLES read a paper on this subject. Having given details of several cases of successful operations for removal of renal calculi, he drew attention to one case in which nephrotomy for renal abscess had been performed and the kidney explored with the finger, but no stone detected. Subsequently, the pyrexia persisting in spite of drainage, the kidney was removed through an incision in the linea semilunaris. On cutting the organ open it was found to contain a calculus about the size of a hazel-nut and to consist of a series of abscess cavities. One case mentioned was operated on from the loin for the purpose of fixing a floating kidney, but on exposure the kidney was found to be cystic and it was accordingly removed. Mr. Myles discussed the connection between the cystic character of the kidney and its mobility, inclining to the belief that the mobility was the cause of the cysts by intermittent blocking of the channel through kinking of the ureter. He advocated removal when the cystic condition was established, as it would be found impossible to fix the kidney owing to the strain placed on it by pressure from the viscera in the irregular surface projections. Mr. Myles then discussed the advisableness of needling the kidney for exploratory purposes from the loin as a substitute for lumbar or abdominal exploration. With a large number of abdominal illustrations, taken from sections of the frozen cadaver, and dissections of the kidney from behind in a subject with organs hardened *in situ*, Mr. Myles pointed out the difficulties and dangers

of the operation, and asked for an expression of opinion from the members on the subject.

In addition, Mr. Myles detailed his attempts to obtain Röntgen photographs of stone in the kidney, and showed the practicability of the idea by exhibiting a photo of a cadaver, in the kidney of which he had placed a large renal calculus. Mr. Myles pointed out the difficulties of diagnosis in surgical diseases of the kidneys, detailing one case in which he had opened what he believed to be an abscess due to appendicitis, but which proved to be due to a renal calculus which had ulcerated through the kidney and set up ulceration around it.

In another case the symptoms of stone and renal enlargement were simulated by a lumbar abscess due to caries of the spine. In discussing the operation of nephrectomy, Mr. Myles expressed himself in favour of the lumbar incision, this being enlarged if necessary by a vertical incision at its anterior extremity.

The PRESIDENT said he was sure that everyone present considered Mr. Myles' paper both interesting and important. With regard to the question of needling as an aid to diagnosis, he did not believe in sticking a needle into the loin in the hope of finding the kidney or of hitting a stone. .

PROFESSOR BENNETT considered the question of diagnosis of renal calculus of prime importance. It was possible for a calculus to be present without giving rise to any symptoms. He had himself, a few years ago, recorded a case of a man who had died from ascites, and *post-mortem* examination disclosed a calculus in the kidney. He could attest that the patient had never had any symptoms whatsoever of renal calculus.

MR. BALL said that in experimenting with the X-rays one ought to be cautious in drawing conclusions as to the presence of a stone. From the photographs which Mr. Myles exhibited, it could be seen that some calculi gave photographs like those given by gall stones, which are very transparent. The skiagraph was of no use, he said, in cases of cholesterine calculi. Calculi containing a large quantity of lime or phosphate gave a good skiagraph; but lithic acid was almost as transparent as cholesterine. With reference to palpation as an aid to diagnosis, he considered that it could not be very much relied on. He mentioned a case in which there was a good deal of pus in the urine, but with no definite symptoms of stone. It was discovered that pus was coming from one ureter, and subsequently a considerable tumour was found on palpating the lumbar region. An incision was made, but efforts to detect a stone were fruitless. The man

improved in health, though suppuration continued. Subsequently the kidney was removed, and a stone of considerable size was discovered. Recovery was complete. He referred to another case in which it was thought that gonorrhœal inflammation had spread up the ureter to the kidney. The case became serious, and, on cutting down, the kidney was found to be of considerable size. He drained off a large quantity of pus, and his finger struck a large stone. Such cases, he said, showed the extreme difficulty of diagnosis of renal calculi.

MR. TOBIN thought that no definite rule could be drawn about the position of incision. He considered the anterior incision better if there was no pus in the urine and no rise of temperature. He had seen some very large tubercular kidneys removed through an anterior opening—so large, indeed, were the kidneys that some matter from them could not have failed to get into the peritoneal cavity.

SIR WILLIAM STOKES said that he had adopted the line of incision to which Mr. Myles objected. He had seen cases in which he thought that he (Mr. Myles) would have adopted the anterior incision also on account of the large size of the tumours. He considered Mr. Myles needlessly apprehensive of peritoneal troubles from the anterior opening. A more satisfactory view, he thought, could be obtained from the anterior opening. He considered the X-rays an important aid to the diagnosis of renal calculus, and they would probably be of much greater aid when brought to perfection. He agreed with the President in his remarks about exploration with the needle.

MR. M'ARDLE thought the X-rays of great value in the diagnosis of calculi. He had experimented with tubes somewhat different from the usual kind, and had found that cholesterine crystals were shown very clearly, so that the question of translucency was of no weight at all. With regard to needling, he had himself practised it as well as passing sutures through the kidney in his first operations on floating kidney, but he had now abandoned the practice as the results had been unfavourable. The question of the floating and cystic conditions of the kidney being present together was a very interesting one. He had formerly shown a cystic kidney with the ureter shaped like the figure S, and could not be uncoiled. There had been an intermittent discharge of pus for two years. This case bore out the statement that displacement of the kidney produces such changes as to bring about a cystic condition.

MR. R. LANE JOYNT said that from skiagraphy negative results were sometimes obtained. With reference to the case at present

in hospital to which Mr. Myles had referred, the shadows on the first plate, though definite, could not be recognised as any known objects. A second photograph showed the ilium, but not the spine, and was therefore rejected. A third photograph revealed the spinal column distinctly, but no calculus was evident. He therefore concluded that, at all events, an opaque calculus was not present, but that a translucent calculus might be present.

MR. MYLES (in reply).—The case which Professor Bennett had mentioned, was further proof that a calculus could be present without creating symptoms. He (Mr. Myles) thought it would be interesting to collect kidneys with calculi in them, and find out the amount of damage done to the kidney in each case. He quite endorsed Mr. Ball's remarks about abdominal palpation, and he had often seen surgeons deceived by this procedure. He hoped that Sir William Stokes did not think that he (Mr. Myles) objected to a vertical incision in addition to the original one; but, hitherto, he had commenced the incision from behind, and believed that there was an advantage in so doing, as in that way he could begin with the retro-peritoneal operation. Mr. M'Ardle had pointed out an advantage in controlling haemorrhage obtained from the anterior incision. Mr. Myles considered that an open question, as the placing the clamp on the renal vessels had sometimes been attended with great danger.

The Section then adjourned.

Friday, April 2, 1897.

The PRESIDENT in the Chair.

Treatment of Strangulated Femoral Hernia, with Gangrenous Intestine.

MR. HEUSTON brought forward two cases of strangulated femoral hernia in women of over sixty years of age, where, owing to the gangrenous condition of the intestine, it was necessary to excise the intestine and corresponding mesentery. In the first case the symptoms of strangulation had lasted for four days before the operation, and the patient was in an extremely collapsed condition; eleven inches of the intestine was removed, and the intestine was united by suture. The patient died three days after the operation from collapse, when the intestine was found united but gangrene had supervened in it for about an inch above the line of suture. The second patient was seen two days after the symptoms of strangulation had come on; eight inches of the intestine was removed and the intestine united by suture; the patient recovered

perfectly without complication, the method of radical cure employed in both cases being that advocated some years since by Mr. Heuston and described in Treves' operative surgery. In both the cases it was noted that no fluid was contained in the sac, which was intimately attached to the gangrenous contents.

Mr. Heuston then stated the treatment recommended in the different text-books on surgery in general use, and pointed out the advice of all the more recent works, with one exception, was in favour of primary resection, whenever possible, instead of the older method of artificial anus. He showed that, by statistics, this was the proper treatment, as the percentage of mortality after artificial anus was about 90, while that after resection was 47, and that the more recent cases gave a much better percentage than this, owing to the improvements in the methods of union of the divided intestine.

Mr. Heuston objected to the use of any of the foreign bodies which have been introduced within the past few years, believing that they introduced an unnecessary element of danger, and that, in his experience of a large number of enterectomies for different causes, he had uniform success by the use of sutures applied in a method which he then described, and claimed that the union could be completed by suture in as short a time as by any of the appliances.

Intestinal Anastomosis.

PROFESSOR BALL brought forward a new pattern of decalcified bone ring, for end to end intestinal anastomosis. It resembled in shape a Murphy's button, but made in one piece, with a deep groove round the circumference, of sufficient width to allow the edges of divided intestine to be involuted, while keeping the peritoneal surfaces in contact, the groove being induced to accommodate any surplus intestine. The essential feature of its use is the primary introduction of a lacing suture loosely connecting both ends of bowel round their entire circumference; the ring is subsequently introduced by pulling apart two of the loops, and as the suture is tightened, it falls into the groove in the ring, drawing in and firmly uniting both edges of divided intestine, while the lips of the groove support the peritoneal surfaces of the intestine in apposition. An additional continuous suture passed round the entire circumference through the outer coats of the bowel only, where the peritoneal surfaces are in contact, completed the union.

Professor Ball claimed that it was the most rapid method as yet introduced, and, if properly done, leakage was quite impossible.

By making the upper end larger than the lower, the difficulty of joining a dilated gut above a stricture to a contracted gut below, was quite obviated, the decalcified bone was absorbed without difficulty. Four cases were recorded of the use of this ring by the author—1 of resection of small intestine for a large gangrenous hernia, 1 of resection of upper portion of rectum, 2 of colectomy for malignant disease; one of the latter, a case of very extensive cancer of the transverse colon, died suddenly seven days after operation, the other three made perfect recoveries.

MR. LENTAIGNE advocated resection in gangrene. He believed Mr. Ball's button to be one of the most rapid means obtainable of procuring safe anastomosis, but would not say it was better than Mr. Hayes' method. He differed from Mr. Heuston in recommending the suture in all cases. Suture of the intestine without a button was often too slow. He thought Mr. Ball's method was better than Murphy's. It was a fact that many Murphy's buttons had been passed successfully, but many accidents had also happened.

MR. M'ARDLE said he had seen Mr. Murphy operate, and he could assure them that half the time occupied by Mr. Ball had not been occupied by Mr. Murphy in placing his button. With regard to the subsequent occurrence of strictures, these had not yet had time to occur in Mr. Ball's cases; but how did they know that strictures would not occur? He considered Murphy's method invaluable. Failures from the use of Murphy's button had occurred, and arose from imperfections in the suture giving rise to leakage, or from some spring having given way. Other failures had been the result of putting Murphy's button in improper situations, or from using a button of improper size. Dr. Heuston had said that he had had uniform success by one method, but he (Mr. M'Ardle) did not know of uniform success by any one method.

MR. MYLES said he thought that a false analogy was often drawn between operations for resection of the bowel and strangulated hernia and the operations for resection of malignant disease of the bowel causing obstruction. He considered Mr. Heuston's statistics unreliable; and as gangrene of the intestine might occur in a young man or in an elderly person, or the gangrene might be got in an early or late stage, surely these cases could not be put together for statistical purposes; but, nevertheless, all these cases had to be brought together. Where the gut had been fixed to the abdominal wall, and an artificial anus made, the re-establishment of the bowel was very difficult. He was prepared to acknowledge that Mr. Heuston's cases, when compared with Mr. Ball's, did not uphold his own thoughts. In both cases the groups

were too small to draw any but mild deductions. The fact that all bobbins, exclusive of Murphy's button, had a tendency to produce cicatricial contraction of the gut he did not believe to be quite true. There was a type of bobbin with a deep groove between two projections, and, obviously, if the bobbin were two inches at the periphery and one and a half inches at the groove, the gut would have to be puckered and thrown into folds which became adherent, and the material for the subsequent cicatricial contraction was provided. Mr. Ball's bobbin he considered most ingenious, and an apparatus which every surgeon ought to have by his side. He congratulated Mr. Ball on dividing Poupart's ligament. He had lately been at an operation where it had been proposed to use a bobbin, but this was not done. If Poupart's ligament had been divided, the bobbin might have been used and a considerable amount of time saved. At the same time, he did not quite understand how Mr. Ball prevented a weakness having taken place at the abdominal ring after division of Poupart's ligament. Under certain circumstances, where there was a fat mesentery, he thought it impossible to produce equable uniform pressure by means of a Murphy's button.

PROFESSOR BENNETT asked if, in a case of Dr. Ball's, a ventral hernia had not occurred after the division of Poupart's ligament.

MR. HEUSTON (in reply) said that his operations by simple suture had been carried out in much less time than Mr. Lentaigne thought. He disagreed entirely from Mr. M'Ardle in the use of Murphy's button, and he did not see what right any surgeon had to deliberately set up gangrene, close it up, and leave it to extend a certain distance to be limited by a part of the gut cut by the bobbin. He did not say that he was opposed to bobbins, but none of them so far were, in his opinion, proper appliances; but the best of them, he considered, was Mr. Ball's. Mr. Myles' criticisms about his (Mr. Heuston's) statistics were quite fair, but they were the only kind obtainable by him.

MR. BALL (in reply) said that he had answered Professor Bennett's question in his paper. A hernia had occurred after division of Poupart's ligament, but the hernia had not occurred at the femoral ring, and it was not in consequence of the division of Poupart's ligament that the hernia took place. It was at the site of the drain tube. The closure of the femoral ring was easily brought about by the division of Poupart's ligament. With regard to Mr. M'Ardle's remarks about a fistula which had occurred in one case, this fistula had occurred in the case of the rectum, and he (Mr. Ball) said that he had not yet come across any appliance

which did not occasionally produce fistula. He had seen a case in which a large fistula had been made by Murphy's button. In other parts of the intestinal tract there were cases to show that Murphy's button was frequently a real danger which might be avoided by other methods. He had not yet seen strictures caused by the use of a ring.

The Section then adjourned.

SECTION OF MEDICINE.

President—GEORGE F. DUFFEY, M.D., President of the Royal College of Physicians of Ireland.

Sectional Secretary—H. C. TWEEDY, M.D.

Friday, March 12th, 1897.

The PRESIDENT in the Chair.

Significance of Dilatation in Functional and Organic Diseases of the Stomach.

DR. M. A. BOYD read a paper on the above subject.

DR. DOYLE said he believed that a tube with as large a lumen as possible was the best for lavage. Lung troubles, he believed, such as chronic bronchitis, were causes of partial dilatation of the stomach, brought about by the passive congestion interfering with the nutrition of the organ. Another cause was the badly kept condition of the teeth of the poorer classes, and the short time given by them to the proper mastication of their food, which was usually of a starchy nature.

DR. POTTER said that he had frequently found a large teaspoonful of vegetable charcoal, taken an hour or two after meals, very beneficial in the treatment of dilated stomach.

DR. TWEEDY remarked that with reference to the constipation which usually occurred in connection with dilatation of the stomach, he considered that this symptom could be explained by mechanical means, and that it was not necessary to seek for a definite pathological cause. He referred to a case which he had formerly shown, where the stomach filled almost the entire abdominal cavity, the condition having been brought about practically by the continual eating of large quantities of potatoes, and he thought that the pressure of the stomach filled with a large quantity of food of this nature, which cannot be got rid of as quickly as it ought to be, was one cause of constipation. Constipation could also be accounted for on anatomical grounds. He explained that

the first portion of the duodenum was about two inches in length and freely movable, while the second portion was fixed. It was therefore evident that a dilated stomach filled with starchy food could, by drawing down the pylorus and with it the first part of the duodenum, produce a mechanical kink at the junction of the first and second parts of the duodenum sufficient to cause obstruction to the free passage of food.

The PRESIDENT asked if Dr. Boyd meant by partial dilatation a condition in which one end of the stomach was dilated and not the whole organ. He was not quite sure that Hilton Fagge was correct in saying that there was fibroid thickening of the pylorus in cases of complete distension. Fagge described acute dilatation of the stomach, and mentioned at least one case in which dilatation occurred so suddenly that coma set in and death followed. He (the President) believed that muscular wasting was really at the bottom of many forms of dilatation, but the exact cause of the wasting he did not know. He asked if the pylorus had ever been stretched as a treatment in this country. The extent of the dilatation could be made out by giving the patient effervescent powders, or by filling the stomach with large quantities of fluid. He asked if Dr. Boyd was convinced that the splash sound obtainable was always diagnostic of dilatation.

DR. BOYD then replied.

Two Cases of Relapse in Scarlatina.

DR. E. MACDOWEL COSGRAVE read a paper on two cases of relapse in scarlatina.

CASE I. was a girl of nine years of age, who was admitted into Cork-street Fever Hospital on November 12th, 1896, suffering from a severe attack of scarlatina anginosa, the temperature falling to normal on the ninth day. On the twenty-eighth day, whilst desquamation was occurring in large flakes on the feet, the child had an attack of vomiting, and the temperature ran up to 105·8°, and a punctiform rash appeared, the tongue and pharynx being also typically affected, and albumen appearing in the urine. On the eighth day of the relapse secondary desquamation commenced, and gradually spread over the body.

CASE II. also was a girl, aged nine years, who was admitted to Cork-street Hospital with a younger sister, on November 27th, 1896, suffering from well-marked scarlatina. Eighteen days after admission, whilst free desquamation was going on, the child complained of headache and sore throat, the temperature rose to 105·8°, and a punctiform rash appeared, desquamation where occurring was increased, and where finished was repeated.

DR. J. W. MOORE agreed that true relapses had occurred in Dr. Cosgrave's cases. He (Dr. Moore) said it was an interesting fact that by means of isolated hospitals it was possible to produce many cases of relapse in scarlatina, provided that the patients were kept in the wards long enough. It is now believed, he said, that the cause of the relapse is a true re-infection, and that immunity is not established by the first attack ; from which fact it would be learnt that scarlatina convalescents should not be kept for any length of time in the wards in which they had been ill. He thought that the Dublin Hospitals were at fault in this matter. Cases of scarlatina, he said, should be removed as soon as possible after the patients get up to Convalescent Homes for Infectious Cases.

DR. MACDOWEL COSGRAVE, in reply, said that in Cork-street Hospital the patients were not kept as long as possible in the same ward, but were removed to another ward, and very often to another building. There was a Convalescent Home, he said, in connection with Cork-street, and, so far as possible, the cases were kept separate.

*Treatment of Cancer with Celandine (*Chelidonium Majus*).*

DR. JOSEPH REDMOND read a paper on the treatment of cancer with celandine (*Chelidonium majus*). He exhibited patients suffering from epithelioma of the tongue and of the lip, and read notes of two cases—one of cancer of the oesophagus, and the other of cancer of the liver. All cases were improving under treatment with celandine.

THE PRESIDENT said that he had seen the papers to which Dr. Redmond had referred, and he (the President) had noticed that Dr. Redmond had carried out the treatment with very good results. It was remarkable that so little pain had been caused by the use of the drug, seeing it was an irritant and an active narcotic poison. Had Dr. Redmond noticed that the administration of the drug had been followed by any effect on the secretions—that was, did it produce any purgative effect ? Formerly the drug was given in hepatic diseases, and seemed to have done good by internal administration.

DR. NINIAN FALKINER recommended the use of the juice, freshly made, to other preparations of the drug.

DR. CRAIG, in referring to Dr. Redmond's case of oesophageal stricture, said that the symptoms were particularly symptoms of dyspepsia. He had found patients come to hospital complaining of inability to swallow anything, and yet attempts to make such patients swallow food were often successful.

DR. J. W. MOORE said that some of the cases brought forward by Dr. Redmond were a little open to doubt as being cases of cancer, and that the symptoms were much more like acute dyspepsia. The mental phase in cases of cancer was to be regarded, for patients suffering from the disease grasp at any straw, and begin to think they are going to be cured. Again, it was possible for the secondary effects in cancer to be relieved by remedies without doing the primary cause any good. Condurango, he said, had been used in the treatment of cancer, but without much benefit. Another treatment for cancer was to give the patient erysipelas, and good results had been sometimes achieved in this way.

DR. REDMOND, in reply, said that he had never noticed any intense diarrhoea after administration of the drug. Concerning Dr. Craig's remarks about oesophageal stricture, he (Dr. Redmond) had made sure that his patient could not swallow, and at the same time that he was getting worse. Positive diagnosis of oesophageal stricture could hardly be made. As regards what Dr. Moore had said about giving erysipelas to a patient with cancer, he (Dr. Redmond) always tried to confine the erysipelas to the patient who had it.

The Section then adjourned.

Friday, April 9, 1897.

The PRESIDENT in the Chair.

Some Introductory Remarks on the Diarrhoeas of Children.

DR. LANGFORD SYMES read a paper entitled "Some Introductory Remarks on the Diarrhoeas of Children." [It will be found in Vol. CIII., page 390.]

DR. CRAIG said that the aetiology of the disease seemed to be marked by a classification which was arrived at by ascertaining the cause of the disease. One cause of the disease was dyspepsia, and another cause, in a great majority of cases, was infection from milk. Therefore an elaborate classification was not needed.

DR. W. G. SMITH considered the subject a most important one. The small intestine, he said, was the chief seat of digestive processes in adults as well as in children. The stomach was a comparatively small digestive chamber, and prepared the food for the small intestine. He agreed with Dr. Symes in saying that chemical changes were produced by micro-organisms in the small intestine. From a practical point in therapeutics, the treatment of diseases

in the alimentary canal might be based on — first, sensory impressions, such as pain ; secondly, the chemical nature of the contents of the intestine ; and thirdly, the movements of the intestine. It was agreed that the chyme, as it passed out of the stomach in an acid condition, maintained its average acidity down to the ileo-cæcal valve. The contents of the small intestine were never alkaline, and generally acid. Carbonate of sodium was prescribed to prevent hyper-acidity in the small intestine. The main causes of bad effects in children were over-feeding and direct poisoning. It was necessary to regulate the amount of carbo-hydrate in the food of children, as an injurious overplus of acidity resulted from improper carbo-hydrate. Fresh milk, he stated, gave an amphoteric reaction, due to the fact that milk always contained a mixture of mono- and di-phosphate of sodium.

DR. SYMES thanked those present for their kind attention to his paper. Diarrhoea, he said, was a most fatal condition in young children. With regard to Dr. Craig's remarks about a classification, he said that one advantage from such was that simplicity was arrived at.

Angina Pectoris.

DR. JOHN KNOTT read a communication on *Angina Pectoris*. [It will be found in Vol. CIII., pages 369, 465, and in Vol. CIV., page 327.]

DR. DOYLE made some remarks, and

DR. KNOTT replied.

The Section then adjourned.

SECTION OF PATHOLOGY.

President—CONOLLY NORMAN, F.R.C.P.I.

Sectional Secretary, E. J. MCWEENEY, M.D.

Friday, March 26, 1897.

SIR C. NIXON, M.D., in the Chair.

Infective Endocarditis.

DR. M. A. BOYD read a paper on this subject founded on the case of a man, aged twenty-five, who died at the Mater Hospital after an illness of three days' duration, with extreme pyrexia, delirium, and petechial eruption. At the autopsy there were miliary abscesses in the kidney and myocardium, and the mitral valve presented an area near the margin of one cusp devoid of endocardium, and coated with recent fibrin. The blood was fluid. Sections made from the mitral valve showed extensive necrosis and the margin fringed with compact clusters of cocci. The capillaries of the myocardium were plugged with cocci, and the kidney showed similar conditions. Cultures made during the *post-mortem* by Dr. McWeeney produced *Pyococcus aureus* in pure cultivation. The patient had an alcoholic history, and the illness dated from severe exposure to wet and cold. The mode of entrance of the organisms was otherwise unexplained. Dr. McWeeney demonstrated the sections and cultures.

DR. E. J. MCWEENEY looked upon the case as of considerable interest as indicating a morbid condition extremely liable to be overlooked at an examination not of a very careful character. The miliary abscesses in the kidney were very small, and the condition of the mitral valve was also invisible to the naked eye, but the grave condition was revealed under the microscope. One of the microscopical sections showed the whole of the central portion of one of the little abscesses in the kidney taken up by a zoogloea mass of micrococci. Another section showed the myocardium close to the point of attachment of the mitral valve, and it could be seen that the spaces, normally occupied by capillaries, were plugged with masses of micrococci. From a cultivation the *Staphylococcus aureus* had been obtained, and a plate cultivation showed the liquefying power of the organism upon gelatine. The organism produced a pale, washy, yellow colour. The organisms had been evidently circulating in the blood of the patient.

The CHAIRMAN said that probably everyone was familiar with

cases of rheumatic fever undergoing a very bad course where there had been a preceding heart affection. After death the heart, in such cases, presented the ordinary appearance of malignant endocarditis, and the condition seemed to be secondary to a pre-existing organic disease. On the other hand, malignant endocarditis was sometimes found as a primary condition. Some writers said that micrococci, similar in character to those which had been found in malignant endocarditis, were found in all forms of endocarditis. An analogy, he thought, might be drawn between cases of malignant endocarditis and cases of acute tuberculosis, in both of which diseases acute primary forms were sometimes found, or acute forms were sometimes grafted on to chronic ones.

DR. PARSONS said that most cases of malignant endocarditis which had come under his notice had had their origin in disease of the middle ear, the septic material having made its way into the carotid artery or the jugular vein.

DR. BOYD (in reply) said that there was no real indication as to the nature of the case. The symptoms had been those of typhus fever to a great extent, and not till *post-mortem* examination did the nature of the case dawn upon him. There had been no disease of the middle ear, and no indication at all in any organ of a primary seat of disease.

Lantern Demonstration of X-Ray Photos, illustrative of various Pathological Conditions.

DR. LANE JOYNT gave a lantern exhibition of a series of 35 X-ray photos, illustrative of various pathological conditions, and showing the extent and utility of this aid to medicine and surgery. Four cases of Colles' fracture were shown, of which three cases had fracture of the styloid process of the ulna. Dr. Joynt drew attention to the fact that the bones of tuberculous patients reacted differently to the X-rays than did sound bone. The most noticeable feature was the homogenous appearance of the ends of bones such as phalanges, with marked atrophy of the compact covering, and in some cases the shafts of the bones are seen to be in a similar condition. The bones, as a whole, are more transparent than sound bone, even in parts not showing the clinical signs of disease.

A skiagraph of the pelvis of a boy, six years old, suffering from congenital dislocation of the hip, showed the complete outline of the bony framework of the body. The condition of luxation could be plainly seen. The exposure was 20 minutes. An oxalate of lime calculus placed in the kidney of a subject as a control experiment for cases of suspected renal calculus, under the care of Dr. Myles,

showed clearly. The exposure was 35 minutes in a body $7\frac{1}{2}$ inches thick.

A skiagraph of elbow of a boy, twelve years old, exhibited a good example of a supra-condyloid process on humerus—the presence of which had caused a doubtful diagnosis of fracture, to be added to that of dislocation of elbow. The case proved to be a dislocation backwards and outwards, of old standing. Dr. Joynt referred to the difficulty of getting useful results in injuries to the shoulder and hip in stout persons—cases where this means would be most valuable—so far, $7\frac{1}{2}$ inches seemed to be the average limit of thickness, of parts, in which with an 8-inch spark, he had obtained satisfactory results. The right side of the chest permits the rays to pass through better than the left, but no useful results were obtained in cases of suspected aneurysm.

MR. MYLES said that up till the present the positive information of the X-ray photographs had been worked at, and not the negative. Dislocations of the hip and shoulder were subjects on which they would like to get authoritative information. He had photographed a shoulder which had received a severe injury from the falling of a heavy piece of wood on it. The symptoms, on examination, were almost exactly those of sub-coracoid dislocation of the humerus. The patient was a very muscular man, and on examination under chloroform crepitus was easily obtained, the head of the bone was in its normal seat, and, so far as he could judge, the fracture was somewhere in the neighbourhood of the head of the humerus. The photograph had been a failure. Fracture of the styloid process of the ulna in Colles' fracture was of constant occurrence. The one case of Colles' fracture which Dr. Joynt had photographed for him was remarkable in that the patient merely complained of a sprained wrist, and when, after his wrist had been photographed, he was told that he had sustained a fracture, he was exceedingly surprised. He referred to the difficulty of obtaining photos of the hip, especially in muscular individuals. The photographs of congenital dislocation in the child were of great interest, as showing that if he could have obtained such information some years ago, three little children would have been saved from the pain of operations from which no benefit had accrued. With reference to the photograph of the hand, he had noticed a curious ramified appearance of the ends of the phalanges and the metacarpal bones in cases of caries of the wrist.

DR. HAUGHTON considered the hip joint, at present, almost out of reach of the X-rays, except in cases where the antero-posterior diameter was only seven inches or less. The difficulty, he thought,

consisted in the presence of the glutei and quadriceps muscles which were of a tendinous nature. There should be no difficulty in locating foreign bodies of a metallic nature. It had been proved that glass was opaque enough to give a shadow.

DR. MCWEENEY, in referring to one of the photographs, said that in the removal of parts of bones he had observed that the bones far away from the seat of tubercular lesion showed a sort of sponginess, so that they could be cut like cheese, and that condition was due to a dilatation of the cancellous tissue, and a sort of thinning of the osseous trabeculae. That might be assigned to a sort of hypoplasia of the whole osseous system. Some writers thought that in tuberculosis such a state of cachexia might be produced that absorption of the osseous material could occur.

DR. LANE JOYNT, in reply, thanked those present for the way in which they had received his communication. He had lately tried to skiagraph a man with aneurysm of the descending aorta, but the shadows had been too indefinite to indicate anything. He presumed that a shadow thrown by an aneurysm—if thrown—would, in that case, coincide with the view of the heart.

Locomotor Ataxy.

DRS. COLEMAN and O'SULLIVAN brought forward this case. Dr. Coleman detailed the clinical history, according to which it appeared that the patient, a man aged forty-one, a book-keeper, never had syphilis, but he suffered much from exposure to wet and cold. His symptoms began two and a half years before his death with lightning pains in his legs, followed, six months later, by slowness in micturition and occasional incontinence of urine. Eighteen months before his death he had transient diplopia, stumbled in the dark, and felt unsteady on his legs; about the same time he noticed numbness of the fingers of his left hand. The unsteadiness in walking progressed for the next twelve months, at the end of which time he suffered from painful tenesmus and girdle sensation.

On admission to hospital his symptoms were as follows: slightly ataxic gait; inco-ordination of movements of arms; Romberg's sign well marked; tactile sensation deficient over distribution of left ulnar nerve, less so in right hand; thermo-anæsthesia in left arm and both legs, with slight analgesia and retarded transmission of painful sensations; Argyll-Robertson pupil; loss of knee-jerks, and of plantar, cremasteric, and of abdominal reflexes. Nutrition of toe-nails and of skin of soles of feet was much impaired. He had old-standing tuberculo-fibroid disease of both lungs, and he

died five weeks after admission to hospital of disseminated pulmonary tuberculosis.

PROF. O'SULLIVAN said that the *post-mortem* examination showed thickening and sclerosis of the aortic valves; cavities, fibroid changes, and bronchiectasis in the right lung and disseminated tubercles in the left. On microscopic examination the nerves of the cauda equina showed increase of endonecerium and marked thickening of the inner coats of the arteries. The cord showed degeneration of the posterior columns, which could be traced from the lower coccygeal region, where the cord was two millimetres in diameter, to the medulla oblongata. The ventral field of the posterior columns was free from degeneration throughout. A narrow zone running along the median septum was free in the lower part of the cord. In the dorsal region the medullated fibres of Clark's column had entirely disappeared. The posterior roots outside the cord were markedly degenerated up to about the 5th dorsal segment; from this on to the 2nd dorsal segment they were almost free, and the path of these undegenerated fibres in the cord formed a narrow strip which could be traced along the outer margin of Goll's column to the medulla, where they ended in the nucleus cuneatus. Above the 2nd dorsal segment the degeneration of the posterior roots recurred, and was most marked in the cervical enlargement. Their path in the cord was marked by a strip of degeneration lying outside the last-mentioned and also passing to the nucleus cuneatus. Above the cervical enlargement the degeneration of the incoming roots suddenly ceased. The degeneration was most marked all through on the left side. Two of the spinal ganglia which were examined showed slight proliferation of the layer of cells lining the spaces occupied by the ganglion cells.

DR. M. A. BOYD asked if the peripheral nerves had been examined in the case. Any interference with the peripheral nerves would account, to a great extent, for the symptoms in locomotor ataxy.

DR. McWEENEY considered that Professor O'Sullivan ought to be congratulated on the way in which he had worked out the case. The subject was one which needed thorough-going investigation. He asked if Professor O'Sullivan had examined the posterior roots by Marchi's method. Professor Leyden had lately stated that Weigert's method was incapable of showing a relatively slight amount of degeneration in the posterior nerve roots, but that Marchi's method would show it. Professor Leyden had described certain large round cells as occasionally to be seen surrounding the ganglion cells, and he had also described the same kind of cells,

which were known as Leyden's cells, surrounding the trophic cells in the anterior horn in cases of infantile paralysis. Did Professor O'Sullivan utilise Pal's method in studying the changes in the ganglion cells?

The CHAIRMAN asked if Professor O'Sullivan considered the condition of the blood vessels in the lower part of the cord a primary or a secondary effect of the lesion.

PROFESSOR O'SULLIVAN (in reply) said, in answer to Dr. Boyd, that the peripheral sensory nerves had been examined. With reference to Dr. McWeeney's questions, he said that in fresh degenerations, when the myeline was altered but not absorbed, Marchi's method was useful. In the case of old chronic processes with sclerosis, that method was less and less useful, but he had the very strongest opinion of the usefulness of Marchi's method in almost all forms of degeneration. It was true that degenerations which were absolutely invisible by Weigert's method, showed strongly by Marchi's. He did not think that the cells which he had seen could have been what Dr. McWeeney said were described by Leyden. As regards the study of ganglion cells in general, he used Nissl's method. With reference to Sir C. Nixon's remarks, he (Prof. O'Sullivan) said he had not had sufficient experience to say what lesion was primary or secondary, but he was of opinion that both the lesions of the blood vessels and nerves had the same cause and were independent.

Addison's Disease, with Bilateral Supra-renal Atrophy.

The CHAIRMAN (SIR C. NIXON) showed the viscera from a well-marked case of Addison's disease. The adrenals were reduced to their shells of fibroid and fatty tissue, owing to some process of the nature apparently of simple atrophy. Tubercle was conspicuously absent. Dr. McWeeney had prepared sections from the atrophic tissue, and had demonstrated narrow strands of epithelial cells scattered here and there through the mass of fibrous material, and representing all that remained of the adrenal cortex. (Sections shown.)

DR. MCWEENEY said that he, himself, could not have been sure that there would have been such complete destruction of the supra-renal capsules, had he not been at the *post-mortem* examination himself, and assisted Sir C. Nixon; a very careful dissection had been made. The supra-renals had been reduced to mere shells, and microscopical examination showed a peculiar brown zone of cells between two brilliant red areas of connective tissue. The brown area represented all that remained of the supra-renal cortex.

Examination had failed to reveal the cause of the destruction. There was a dense mass of fibrous and fatty tissue, in which were embedded some small strands, which represented the only surviving elements of the supra-renals.

The Section then adjourned.

THE DISINFECTION OF BOOKS BY THE VAPOUR OF FORMALIN.

ELMER GRANT HORTON, B.S. (*Medical News*, New York, LXIX. 6), has tried a series of experiments on the power of formalin to disinfect books. To avoid destroying the books a small piece of paper smeared with twenty-four hour old cultures of the bacilli of enteric fever, diphtheria, &c., was placed in folded-down pages; the books were then exposed to formalin under a bell-glass, and afterwards allowed to stand about for various periods; finally the infected papers were placed in bouillon at 37° C., and observed daily for some time. The books were sometimes on their sides and sometimes on end, but were never open, and sometimes several were placed in a pile. The conclusions arrived at were:—

1. Books can be disinfected in a closed space, simply by vapour of commercial formalin by using 1 c.c. of formalin to 300 c.c. or less of air.
2. The vapour of formalin is rapid in its disinfectant action. The effect produced in the first fifteen minutes is practically equivalent to that observed after twenty-four hours.
3. An increase in the amount of air to each c.c. of formalin is not counterbalanced by an increase in the length of time of exposure.
4. In case the disinfection has been incomplete, the vitality of the organisms has been so weakened that they survive only if transferred in a few hours to media suitable for their development.
5. The use of vapour of formalin is not detrimental as far as observed in any manner to the books, nor is it objectionable to the operator beyond a temporary irritation of the nose and eyes, somewhat similar to that produced by ammonia.

SUICIDES IN FRANCE

ARE increasing actually as well as relatively. The annual average for the years 1861-65 was 4,661, or 12 per 100,000 inhabitants; for the years 1871-75, 5,276, or 15 per 100,000 inhabitants; for the years 1881-85, 7,339, or 19 per 100,000; and for the years 1886-90, the yearly average was 8,226, or 21 per 100,000.

SANITARY AND METEOROLOGICAL NOTES.

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VITAL STATISTICS

For four Weeks ending Saturday, May 22, 1897.

The deaths registered in each of the four weeks in the twenty-three principal Town Districts of Ireland, alphabetically arranged, corresponded to the following annual rates per 1,000:—

TOWNS	Weeks ending				TOWNS	Weeks ending			
	May 1	May 8	May 15	May 22		May 1	May 8	May 15	May 22
Armagh -	28·0	35·1	35·1	7·0	Lisburn -	4·3	17·0	21·3	8·5
Ballymena	5·6	5·6	22·5	22·5	Londonderry	25·1	20·4	23·6	9·4
Belfast -	24·6	26·1	27·6	20·8	Lurgan -	27·4	4·6	4·6	27·4
Carrickfer-	17·5	29·2	40·9	0·0	Newry -	16·1	16·1	12·1	12·1
gus					Newtown-	11·3	34·0	11·3	51·0
Clonmel -	9·8	34·2	24·4	4·9	ards				
Cork -	36·0	29·1	35·3	25·6	Portadown -	12·4	18·6	24·7	18·6
Drogheda -	34·2	19·0	11·4	7·6	Queenstown	23·0	40·2	11·5	28·7
Dublin -	28·8	33·3	27·4	26·7	Sligo -	20·3	30·5	5·1	10·2
Dundalk -	29·3	4·2	25·1	16·8	Tralee -	0·0	39·2	50·4	22·4
Galway -	41·5	22·7	34·0	26·4	Waterford -	11·9	23·9	15·9	9·9
Kilkenny -	18·9	37·8	33·0	14·2	Wexford -	18·1	18·1	9·0	22·6
Limerick -	15·4	18·2	9·8	18·2					

In the week ending Saturday, May 1, 1897, the mortality in thirty-three large English towns, including London (in which the rate was 16·9), was equal to an average annual death-rate of 18·3 per 1,000 persons living. The average rate for eight principal towns of Scotland was 22·0 per 1,000. In Glasgow the rate was 20·6. In Edinburgh it was 30·1.

The average annual death-rate represented by the deaths registered during the week in the twenty-three principal town districts of Ireland was 25·4 per 1,000 of their aggregate population, which, for the purposes of this Return, is estimated at 984,720.

The deaths from the principal zymotic diseases in the twenty-three districts were equal to an annual rate of 3·8 per 1,000, the rates varying from 0·0 in seventeen of the districts to 6·9 in Cork—the 52 deaths from all causes registered in that district comprising 3 from measles, 6 from whooping-cough, and 1 from diarrhoea. Among the 133 deaths from all causes registered in Belfast are 3 from measles, 7 from whooping-cough, 1 from diphtheria, 1 from simple continued fever, 8 from enteric fever, and 3 from diarrhoea.

In the Dublin Registration District the registered births amounted to 196—101 boys and 95 girls; and the registered deaths to 198—104 males and 94 females.

The deaths, which are 9 over the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 29·5 in every 1,000 of the population. Omitting the deaths (numbering 5) of persons admitted into public institutions from localities outside the district, the rate was 28·8 per 1,000. During the first seventeen weeks of the current year the death-rate averaged 38·2, and was 7·2 over the mean rate in the corresponding period of the ten years 1887–1896.

The number of deaths from zymotic diseases registered was 38, being 18 in excess of the average for the corresponding week of the last ten years, but 7 under the number for the previous week. The 38 deaths comprise 16 from measles—being 3 under the number from that disease in the preceding week—13 from whooping-cough (being 1 under the number for the preceding week), 2 from diphtheria, 3 from enteric fever, 2 from diarrhoea, and 1 from cholericine. Thirty-one of the 38 deaths from zymotic diseases were deaths of children under 5 years of age.

The weekly number of cases of measles admitted to hospital, which had gradually fallen from 71 in the week ended March 27, to 28 in that ended April 24, further declined to 16. Forty-one measles patients were discharged, 3 died, and 81 remained under treatment on Saturday, being 28 under the number in hospital at the close of the preceding week.

Twenty-one cases of scarlatina were admitted to hospital, against 14 in the preceding week and 17 in the week ended April 17. Twenty-five patients were discharged, 2 died, and 111 remained under treatment on Saturday, being 6 under the number in hospital

on that day week. There were, besides, 20 convalescents at Beneavin, Glasnevin.

The admissions of enteric fever cases declined to 6: 8 patients were discharged, 2 died, and 44 remained under treatment on Saturday, being 4 under the number in hospital at the close of the preceding week.

The number of deaths from diseases of the respiratory system registered was 37, being 3 under the average for the corresponding week of the last ten years, and 20 under the number for the previous week. The 37 deaths comprise 20 from bronchitis and 15 from pneumonia.

In the week ending Saturday, May 8, the mortality in thirty-three large English towns, including London (in which the rate was 15·5), was equal to an average annual death-rate of 17·0 per 1,000 persons living. The average rate for eight principal towns of Scotland was 20·7 per 1,000. In Glasgow the rate was 23·3, and in Edinburgh it was 22·9.

The average annual death-rate in the twenty-three principal town districts of Ireland was 27·7 per 1,000 of their aggregate population.

The deaths from the principal zymotic diseases in the twenty-three districts were equal to an annual rate of 3·4 per 1,000, the rates varying from 0·0 in sixteen of the districts to 11·7 in Carrickfergus—the 5 deaths from all causes registered in that district comprising 2 from measles. Among the 141 deaths from all causes registered in Belfast are 5 from measles, 1 from scarlatina, 2 from whooping-cough, 1 from simple continued fever, 8 from enteric fever, and 1 from diarrhoea. The 42 deaths in Cork comprise 2 from measles, 3 from whooping-cough, and 1 from diarrhoea. Two of the 6 deaths in Newtownards were caused by whooping-cough.

In the Dublin Registration District the registered births amounted to 219—100 boys and 119 girls; and the registered deaths to 226—123 males and 103 females.

The deaths, which are 46 over the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 33·7 in every 1,000 of the population. Omitting the deaths (numbering 3) of persons admitted into public institutions from localities outside the district, the rate was 33·3 per 1,000. During the first eighteen weeks of the current year the death-rate averaged 38·0, and was 7·3 over the mean rate in the corresponding period of the ten years 1887-1896.

Zymotic diseases caused 45 deaths, being 7 over the number in the preceding week, and 23 in excess of the average for the eighteenth week of the last ten years. The 45 deaths comprise 8 from measles—being 8 under the number from that cause in the preceding week—4 from scarlet fever (*scarlatina*), 1 from typhus, 5 from influenza and its complications, 16 from whooping-cough (against 13 in the preceding week), 2 from diphtheria, 2 from enteric fever, 1 from cholera, and 2 from diarrhoea. Two of the 8 deaths from measles occurred in the city and 6 in suburban districts. Thirty-four of the 45 deaths from zymotic diseases were deaths of children under 5 years of age.

The number of cases of measles admitted to hospital was 13, being 3 under the admissions in the preceding week, and 15 under the number in the week ended April 24. Twenty-eight measles patients were discharged, 1 died, and 65 remained under treatment on Saturday, being 16 under the number in hospital at the close of the preceding week.

The weekly number of cases of *scarlatina* admitted to hospital, which had risen from 14 in the week ended April 24 to 21 in the following week, fell to 16. Twenty-four patients were discharged, 2 died, and 101 remained under treatment on Saturday, being 10 under the number in hospital on the previous Saturday. There were, besides, 18 convalescents at Beneavin, Glasnevin.

Only 4 cases of enteric fever were admitted to hospital, being 2 under the admissions in the preceding week, and 8 under the number in the week ended April 24. Seven patients were discharged, 1 died, and 40 remained under treatment on Saturday, being 4 under the number in hospital on that day week.

Deaths from diseases of the respiratory system, which had fallen from 57 in the week ended April 24 to 37 in the following week, rose to 44, or 8 over the average for the corresponding week of the last ten years. The 44 deaths comprise 22 from bronchitis and 18 from pneumonia.

In the week ending Saturday, May 15, the mortality in thirty-three large English towns, including London (in which the rate was 15·6) was equal to an average annual death-rate of 16·5 per 1,000 persons living. The average rate for eight principal towns of Scotland was 20·8 per 1,000. In Glasgow the rate was 21·4, and in Edinburgh it was 23·7.

The average annual death-rate represented by the deaths registered in the twenty-three principal town districts of Ireland was 25·9 per 1,000 of the population.

The deaths from the principal zymotic diseases in the twenty-three districts were equal to an annual rate of 2·9 per 1,000, the rates varying from 0·0 in fifteen of the districts to 17·5 in Carrickfergus—the 7 deaths from all causes registered in that district comprising 3 from measles. Among the 149 deaths from all causes registered in Belfast are 4 from measles, 1 from scarlatina, 3 from whooping-cough, 1 from diphtheria, 11 from enteric fever, and 4 from diarrhoea. The 51 deaths in Cork comprise 2 from measles, 1 from scarlatina, and 2 from whooping-cough.

In the Dublin Registration District the registered births amounted to 218—114 boys and 104 girls; and the registered deaths to 190—99 males and 91 females.

The deaths, which are 21 over the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 28·3 in every 1,000 of the population. Omitting the deaths (numbering 6) of persons admitted into public institutions from localities outside the district, the rate was 27·4 per 1,000. During the first nineteen weeks of the current year the death-rate averaged 37·5, and was 7·1 over the mean rate in the corresponding period of the ten years 1887–1896.

The number of deaths from zymotic diseases registered was 22, being 3 over the average for the corresponding week of the last ten years, but 23 under the number for the previous week. The 22 deaths consist of 6 from measles, 3 from scarlet fever (scarlatina), 2 from influenza and its complications, 6 from whooping-cough—being 10 under the number from that cause in the preceding week—1 from diphtheria, 1 from cerebro-spinal meningitis, 2 from enteric fever, and 1 from diarrhoea.

Sixteen cases of measles were admitted to hospital, being 3 over the admissions in the preceding week, and equal to the admissions in the week ended May 1, but 12 under those in the week ended April 24. Thirty-four measles patients were discharged, 2 died, and 45 remained under treatment on Saturday, being 20 under the number in hospital at the close of the preceding week.

The scarlatina cases admitted to hospital amounted to 30, against 16 in the preceding week, and 21 in the week ended May 1. Thirty-nine patients were discharged, 1 died, and 91 remained under treatment on Saturday, being 10 under the number in hospital at the close of the preceding week. There were, besides, 24 convalescents at Beneavin, Glasnevin.

Eight cases of enteric fever were admitted, being 4 over the admissions in the preceding week, and 2 over those in the week ended May 1. Twelve patients were discharged, 1 died, and 35

remained under treatment on Saturday, being 5 under the number in hospital on that day week.

The number of deaths from diseases of the respiratory system registered was 30, being 1 under the average for the corresponding week of the last ten years, and 14 under the number for the previous week. The 30 deaths comprise 15 from bronchitis and 10 from pneumonia.

In the week ending Saturday, May 22, the mortality in thirty-three large English towns, including London (in which the rate was 15·4), was equal to an average annual death-rate of 17·2 per 1,000 persons living. The average rate for eight principal towns of Scotland was 22·3 per 1,000. In Glasgow the rate was 22·2, and in Edinburgh it was 26·9.

The average annual death-rate in the twenty-three principal town districts of Ireland was 21·9 per 1,000 of the population.

The deaths from the principal zymotic diseases registered in the twenty-three districts were equal to an annual rate of 1·6 per 1,000, the rates varying from 0·0 in twenty of the districts to 2·8 in Belfast—the 112 deaths from all causes registered in that district comprising 1 from measles, 1 from scarlatina, 1 from whooping-cough, 1 from diphtheria, 8 from enteric fever, and 3 from diarrhoea. Among the 37 deaths from all causes registered in Cork are 3 from whooping-cough.

In the Dublin Registration District the registered births amounted to 217—120 boys and 97 girls; and the registered deaths to 183—99 males and 84 females.

The deaths, which are 11 over the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 27·3 in every 1,000 of the population. Omitting the deaths (numbering 4) of persons admitted into public institutions from localities outside the district, the rate was 26·7 per 1,000. During the first twenty weeks of the current year the death-rate averaged 37·0, and was 6·8 over the mean rate in the corresponding period of the ten years 1887–1896.

Deaths from zymotic diseases further declined to 17, or 3 under the average for the corresponding week of the last ten years. The 17 deaths comprise 5 from measles, 1 from influenza, 6 from whooping-cough, 2 from diphtheria, and 1 from enteric fever.

Sixteen cases of measles were admitted to hospital. Seventeen measles patients were discharged, 2 died, and 42 remained under treatment on Saturday, being 3 under the number in hospital on that day week.

Thirty-one cases of scarlatina were admitted to hospital, against 30 in the preceding week, and 16 in the week ended May 8. Thirteen patients were discharged, and 109 remained under treatment on Saturday, being 18 over the number in hospital at the close of the preceding week. There were, in addition, 24 convalescents at Beneavin, Glasnevin.

The weekly number of cases of enteric fever admitted to hospital, which rose to 8 in the previous week, further rose to 12. Ten patients were discharged, 1 died, and 36 remained under treatment on Saturday, being 1 over the number in hospital at the close of the preceding week.

Thirty-seven deaths from diseases of the respiratory system were registered, being 6 in excess of the average for the corresponding week of the last ten years, and 7 over the number for the previous week. They comprise 22 from bronchitis and 13 from pneumonia.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W. for the Month of May, 1897.

Mean Height of Barometer,	-	-	-	29·976 inches.
Maximal Height of Barometer (on 16th, at 9 a.m.),	30·456	"		
Minimal Height of Barometer (on 28th, at 7 p.m.),	29·217	"		
Mean Dry-bulb Temperature,	-	-	-	50·5°.
Mean Wet-bulb Temperature,	-	-	-	46·4°.
Mean Dew-point Temperature,	-	-	-	42·2°.
Mean Elastic Force (Tension) of Aqueous Vapour,	-	-	-	·270 inch.
Mean Humidity,	-	-	-	73·8 per cent.
Highest Temperature in Shade (on 16th),	-	-	-	63·6°.
Lowest Temperature in Shade (on 6th),	-	-	-	36·2°.
Lowest Temperature on Grass (Radiation) (on 6th),	-	-	-	33·8°.
Mean Amount of Cloud,	-	-	-	49·1 per cent.
Rainfall (on 14 days),	-	-	-	1·139 inches.
Greatest Daily Rainfall (on 6th),	-	-	-	0·266 inch.
General Directions of Wind,	-	-	-	N.W., N.E.

Remarks.

A cold, rather dry month—very showery at the beginning and close, fine and bright in the intervening period, with absolute drought from the 12th to the 24th inclusive, partial drought commencing on the 9th. The prevailing winds were from polar

quarters—N.W., N.E., and E. The rainfall was only 56 per cent. of the average for May.

In Dublin the arithmetical mean temperature ($50\cdot9^{\circ}$) was decidedly below the average ($52\cdot0^{\circ}$); the mean dry bulb readings at 9 a.m. and 9 p.m. were $50\cdot5^{\circ}$. In the thirty-two years ending with 1896, May was coldest in 1869 (M. T.= $48\cdot2^{\circ}$), and warmest in 1893 (M. T.= $56\cdot7^{\circ}$). In 1894 the M. T. was $49\cdot2^{\circ}$; in 1895 it was $54\cdot3$, and in 1896, $55\cdot2^{\circ}$.

The mean height of the barometer was 29.976 inches, or 0.013 inch below the corrected average value for May—namely, 29.989 inches. The mercury rose to 30.456 inches at 9 a.m. of the 16th, and fell to 29.217 inches at 7 p.m. of the 28th. The observed range of atmospheric pressure was, therefore, 1.239 inches.

The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was $50\cdot5^{\circ}$, or $5\cdot5^{\circ}$ above the value for April, 1897 ($45\cdot0^{\circ}$). Using the formula, *Mean Temp.* = *Min.* + (*max.* − *min.* × .47), the value was $50\cdot5^{\circ}$, or $1\cdot1^{\circ}$ below the average mean temperature for May, calculated in the same way, in the twenty-five years, 1865–89, inclusive ($51\cdot6^{\circ}$). The arithmetical mean of the maximal and minimal readings was $50\cdot9^{\circ}$, compared with a twenty-five years' average of $52\cdot0^{\circ}$. On the 16th the thermometer in the screen rose to $63\cdot6^{\circ}$ —wind, E.N.E.; on the 6th the temperature fell to $36\cdot2^{\circ}$ —wind, N.W. The minimum on the grass was $33\cdot8^{\circ}$ on the 6th.

The rainfall amounted to 1.139 inches, distributed over 14 days. The average rainfall for May in the twenty-five years, 1865–89, inclusive, was 2.030 inches, and the average number of rainy days was 15.4. The rainfall, and—to a less extent—the rainy days, were below the average. In 1886 the rainfall in May was very large—5.472 inches on 21 days; in 1869, also, 5.414 inches fell on 19 days. On the other hand, in 1895 only .177 inch was measured on but 3 days. In 1896 the fall was only .190 inch on 7 days.

A solar halo was seen on the 24th. High winds were noted on 12 days, attaining the force of a gale (from W.S.W.) on the 4th only. The atmosphere was slightly foggy on the 20th. Hail fell on the 3rd, 5th, 11th, 12th, and 26th.

During the month the thermometer did not fall below 32° in the screen or on the grass. The mean minimal temperature on the grass was $40\cdot9^{\circ}$, compared with $43\cdot1^{\circ}$ in 1896, $41\cdot8^{\circ}$ in 1895, $37\cdot6^{\circ}$ in 1894, $45\cdot6^{\circ}$ in 1893, $41\cdot3^{\circ}$ in 1892, $37\cdot7^{\circ}$ in 1891, $42\cdot2^{\circ}$ in 1890, $42\cdot4^{\circ}$ in 1889, $37\cdot5^{\circ}$ in 1888, and $37\cdot9^{\circ}$ in 1887.

May Day was fine and dry.

The week ended Saturday, the 8th, proved a very changeable,

showery period; also extremely cold for the time of year until Friday, when the atmosphere became mild and damp, but genial. There was again a cyclonic distribution of barometric pressure in the N.W. and N., while relatively high pressures were found over the Bay of Biscay, France, and Germany. Hence strong winds from westerly (S.W., W., and N.W.) points blew over the British Islands, accompanied by frequent showers of cold rain and hail in the day time, and by clear, very sharp nights. Particularly heavy hail-showers passed over Dublin on Monday and Wednesday. Thunderstorms occurred at Stornoway on Tuesday, Oxford on Wednesday, and Aberdeen on Thursday. On Friday a very considerable increase of temperature took place, and the air became damp and the sky overcast, as some new depressions approached the West of Scotland from the Atlantic. The change was attended by a rather heavy rainfall in Ireland. At the beginning of the week the planet Mercury was well seen after sunset in the north-western sky—on Monday evening the crescent moon and this planet were seen in conjunction. In Dublin the mean height of the barometer was 29.976 inches, pressure ranging between 29.678 inches at 9 a.m. of Sunday (wind, W. by S.) and 30.158 inches at 9 p.m. of Thursday and Saturday (wind, W.N.W. and N.W.). The corrected mean temperature was 48.2°. The mean dry bulb temperature at 9 a.m. and 9 p.m. was 48.0°. On Saturday the thermometer rose to 59.9° in the shade, on Thursday it sank to 36.2°. Rainfall amounted to .537 inch on seven days, .266 inch being registered on Thursday. The prevailing winds were W.S.W. and W.N.W.

The "cold wave of May" was very typically represented by the weather of the week ended Saturday, the 15th, which up to Friday more resembled a period in February or March than the second week in May. Parching northerly winds of great strength, clouded skies, and particularly low night temperatures prevailed. Along the east coast of Great Britain sleet or snow and hail fell frequently. In France and Germany night frosts of much intensity proved very injurious to vegetation. During the first four days a cyclonic system hovered over the south of Norway and Denmark, while an area of high atmospheric pressure lay off the west of Ireland. Northerly winds and low temperatures were in consequence prevalent throughout the British Isles—a cold wave passing quickly southwards from the Shetlands to the Mediterranean. At 8 a.m. of Monday the thermometer read 34° at Sumburgh Head in the Shetlands, where snow was falling. Tuesday and Wednesday were extremely cold days, and there were slight hail-showers

in and near Dublin. At inland stations in England, France and Germany, at this time, the thermometer fell at night to or below 32° even in the screen. The anticyclone moved south-eastwards on Thursday and was afterwards found over the S. of England and France. The sky remained densely clouded until noon on Saturday, when the clouds dispersed and a sunny afternoon followed. In Dublin the mean height of the barometer was 30.254 inches, pressure ranging between 30.046 inches at 9 p.m. of Monday (wind, N.N.W.) and 30.441 inches at 9 p.m. of Saturday (wind, E.S.E.). The corrected mean temperature was 48.3° . The mean dry bulb temperature at 9 a.m. and 9 p.m. was 48.2° . On Tuesday the screened thermometers fell to 37.0° , on Saturday they rose to 58.9° . The prevailing wind was N.N.W. The rainfall was only .001 inch on Tuesday (melted hail). On Saturday morning the thermometer read 68° at Haparanda, within the Arctic Circle, and only 38° at Munich.

An uninterrupted spell of anticyclonic weather has to be recorded in the week ended Saturday, the 22nd. Atmospheric pressure was highest on Sunday, when the barometer read 30.65 inches at Christiansund, on the west coast of Norway. It afterwards gave way intermittently, falling below 30 inches very generally on Saturday. Over Spain, the Mediterranean, and Central Europe at large several shallow depressions were found, and the weather was less settled than in the North of Europe and the British Isles. Owing to the distribution of atmospheric pressure which has just been described, north-easterly winds prevailed and temperature ruled low at night. At stations also on the east coasts of both Great Britain and Ireland the weather was cool even by day. This was especially so at Shields, where in consequence of the prevalence of cloud the thermometer did not rise above 49° from Monday evening to Friday. Inland, however, the heating power of an almost unclouded sun was well marked, London in particular feeling its effect, so that the maxima there were 67° , 75° , 76° , 69° , 73° , and 68° up to Saturday. The cloud canopy which kept the N.E. of England so chilly on Tuesday, Wednesday, and Thursday, extended to the neighbourhood of Dublin on the mornings of Tuesday and Thursday, but by noon in each case the sky had cleared. At times the atmosphere was very hazy, as is usual in anticyclonic easterly winds. In Dublin the mean height of the barometer was 30.183 inches, pressure ranging from 30.456 inches at 9 a.m. of Sunday (wind, E.N.E.), to 29.881 inches at 9 p.m. of Saturday (wind, S.E.). The corrected mean temperature was 53.1° . The mean dry bulb reading at 9 a.m. and 9 p.m. was

53.2°. On Sunday the screened thermometers rose to 63.6°, on Friday they sank to 43.0°. No rain fell. The prevailing wind was N.E. At the Ordnance Survey Office, Phoenix Park, 89.1 hours of bright sunshine were recorded this week.

The week ended Saturday, the 29th, saw the disappearance of the anticyclone which had so long ruled the weather in the N.W. of Europe, and the substitution for it of low pressure areas and their accompanying unsettled, showery conditions. During Sunday and Monday bright, cool, dry weather and north-easterly winds prevailed. On Monday afternoon cirrus cloud overspread the sky from N.W., and a partial solar halo was seen in it at 6.30 p.m. This was the beginning of the change. The barometer began to fall decidedly in all districts, the change being briskest in the north, so that by Tuesday morning a well-defined V-shaped depression had formed over Scotland and the N.W. of England. In the afternoon a secondary disturbance advanced eastwards across Ireland, causing a very general though not heavy fall of rain. This disturbance was found over the S.W. of England on Wednesday morning, when the primary depression was still over Scotland with barometer readings below 29.40 inches. A more rapid fall of the barometer in the S.W. led to the formation of a cyclonic system over the south of Ireland and St. George's Channel by Thursday morning. The weather in consequence became more and more unsettled, with a tendency to thundershowers in many places. On Friday morning areas of high atmospheric pressure existed both in Lapland and over the Peninsula, while depressions covered Ireland, England, and Central Europe. In the afternoon heavy thundershowers occurred in Ireland. Saturday was a breezy, showery day: at 8 a.m. the barometer was down to 29.05 inches at Stornoway. In Dublin the mean height of the barometer was 29.579 inches, the range being from 30.037 inches at 9 a.m. of Monday (wind, N.N.E.), to 29.217 inches at 7 p.m. of Friday (wind, S.W.). The corrected mean temperature was 51.5°, the mean dry bulb reading at 9 a.m. and 9 p.m. being 51.7°. The screened thermometers fell to 40.8° on Friday and rose to 61.6° on Saturday. Rain fell on the last five days of the week to the amount of .396 inch, .227 inch being measured on Friday. The wind was variable.

The last two days of the month were changeable, showery and squally, but not unfavourable.

The rainfall in Dublin during the five months ending May 31st amounted to 10.693 inches on 93 days, compared with 5.971 inches on 70 days in 1896, 10.410 inches on 68 days in 1895, 12.709 inches

on 90 days in 1894, 7.908 inches on 66 days in 1893, 10.099 inches on 80 days in 1892, only 5.995 inches on 63 days in 1891, 11.483 inches on 76 days in 1890, 10.476 inches on 91 days in 1889, 9.068 inches on 69 days in 1888, 6.489 inches on 62 days in 1887, and a twenty-five years' average of 10.496 inches on 81.6 days.

At Knockdolian, Greystones, Co. Wicklow, the rainfall was 1.040 inches, distributed over 10 days—300 inch falling on the 31st and .210 inch on the 6th. The total fall since January 1st, 1897, equals 14.120 inches on 90 days, compared with 5.716 inches on 52 days in 1896, 12.845 inches on 58 days in 1895, 15.696 inches on 85 days in 1894, and 9.565 inches on 65 days in 1893.

The rainfall at Cloneevin, Killiney, Co. Dublin, was 0.850 inch on 10 days—0.26 inch falling on the 26th. At this station the average rainfall in May in the twelve years, 1885–1896, was 2.061 inches on 13 days. May, 1896, was a very dry month, only 0.06 inch falling on 2 days. Absolute drought prevailed from the 8th to the 24th, both inclusive. Since January 1, 1897, 11.21 inches of rain have fallen on 93 days at Cloneevin.

At the National Hospital for Consumption, Newcastle, Co. Wicklow, the rainfall in May was 0.802 inch, on 11 days, .188 inch being measured on the 30th. Since January 1, 14.294 inches of rain have fallen at this station on 87 days. The maximum shade temperature was 62.3° on the 16th, the minimum was 35.9° on the 4th.

GALEN.

DR. JAMES FINLAYSON has printed in pamphlet form his "Two Bibliographical Demonstrations" on Galen. The fifty-five pages in which both are comprised will be read with the greatest interest and pleasure. The account of the great Pergamene's skill in diagnosis, and of the other means by which he rose to his leading position among Roman physicians, combines information with amusement in a manner not too common in professional papers.

DISTOMA HÆMATOBIUM.

DR. FREDERIC E. SONDERN, M.D., gives (*Medical News*, New York, May 1st, 1897) a case of distoma hæmatobium illustrated by a beautiful series of six micro-photographs, illustrating the embryology of the organism.

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31, GOLD & PRIZE MEDALS AWARDED.

MANY of the non-intoxicating beverages introduced as substitutes for alcoholic drinks tend, either in form or flavour, to directly frustrate the cause they professedly serve. The cups which cheer but do not inebriate are not so common, but when a really palatable and wholesome drink of the kind is found, it should meet with all the encouragement temperance advocates can accord. This, at least, would appear to be the view of Mr. S. C. HALL, the venerable apostle of total abstinence. In a late number of *Social Notes* he says:—"I have looked about for something to drink, and I think I have found it—pleasant, palatable, healthful. I refer to the Ginger Ale manufactured by Cantrell & Cochrane (of Dublin and Belfast). I know of no drink so delicious, and I believe it to be as healthful as it is agreeable." This is praise from the Sir Hubert Stanley of temperance, and where he leads, the public may safely follow.—*Court Circular.*

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PERISCOPE.

AUSTRALIAN HOSPITALS.

THE amount of hospital accommodation in proportion to the number of population in New South Wales is somewhat large. The principal State institution is that at Little Bay, on the southern coast, near Sydney. It is intended for the accommodation of persons suffering from contagious diseases of a dangerous character, and is administered by the department of the medical adviser to the Colonial Government, the patients being charged no fees. The other Government hospitals are in connection with the Sydney military barracks, the State asylums for the insane, State asylums for the infirm and destitute, and the principal gaols. Including the Little Bay institution, there were at the end of 1895 one hundred hospitals, subsidised by the Colonial Government, open for the reception of patients, and others were in course of construction. The subsidy consists of one pound for every pound collected by the hospital, the conditions being that the hospital admits all accidents and urgent cases brought to its doors; that all destitute cases recommended by the local police magistrate or other approved officer, including the Local Government medical officer and chief local police officer, be admitted without delay; and that cases of fever, erysipelas, and other infectious diseases be admitted as well as ordinary cases, suitable provision being made for their accommodation and treatment. In Sydney, and at Auburn and Lewisham in the Sydney suburbs, there are hospitals under the care of the Sisters of Charity and the Nursing Sisters of the Little Company of Mary, of the Roman Catholic Church. The patients are not, however, limited to members of this particular denomination. These three institutions depend entirely upon public subscriptions for their maintenance, and do not receive any subsidy from the Government. A special Government grant of £1,000 was, however, made in 1892 towards the building account of a new wing at the Sydney (St. Vincent's) hospital, and a sum of £1,000 was previously received by this institution. The Thomas Walker Convalescent Hospital, on the Parramatta River, is a privately endowed hospital, not in receipt of subscriptions from the public or of subsidy from the Government. Although no recommendation is required, persons cannot be admitted without an official medical certificate, signed by one of the honorary examining or medical visiting officers of the institution. The period of sojourn

is limited to four weeks for each patient, but the medical officer may, if necessary, readmit any patient for a further period of four weeks. Persons eligible for admission are those convalescing from serious illness, or active surgical treatment, and those who have fallen into a sickly condition, and who, in the opinion of the examining medical officer, will be benefited by a few weeks' residence in the country. The Carrington Centennial Hospital, situated at Camden, 42 miles from Sydney, receives convalescent patients from the metropolitan hospitals. Government patients, sent either direct from the hospital admission dépôt or from hospitals when the acute symptoms of illness have subsided, are paid for at the rate of two shillings per day. The hospital is in receipt of the usual subsidy from the State. In Sydney the office for receiving applications for admission to hospitals and asylums is under the management of the Government medical officer, who is charged with the duty of assigning the cases to the different hospitals and asylums, in accordance with the nature, severity, and special character of the ailments from which the patients are suffering, and the accommodation available at the various institutions. Preliminary inquiries are made as to the pecuniary circumstances of the applicants and their fitness in this respect for relief at the hands of the Government. Cases which, on examination, do not appear to need hospital treatment, but to be suitable for the asylums for the infirm and destitute, are recommended to those institutions. The number of applications in 1895 was 9,747. At small hospitals in the country it is a common practice to appoint married couples to manage the institutions. In such cases the wife acts as matron and the husband as wardsman. This arrangement is generally found satisfactory and economical, as the wardsman, in addition to other duties, performs those of a nurse if required. Whenever extra assistance is necessary the services of female nurses are temporarily obtained. There is in Sydney a home for trained nurses, from whence trained nurses may be engaged at fixed rates of payment and subject to certain conditions. Certificates are granted to nurses after three years' training, on passing satisfactory oral and written examinations, which are conducted by the medical staffs of the different hospitals. The medical officers attached to the Benevolent Asylum, Sydney, grant certificates in midwifery to trained nurses after having undergone, to their satisfaction, a six months' course of instruction at that institution. The Sydney Women's Hospital and Dispensary combines in its plans and objects:—A maternity hospital where poor and necessitous women can receive care and attention during their accouchement; medical and nursing aid for

poor women at their own homes during their accouchement ; medical and surgical aid for women suffering from diseases peculiar to their sex, as indoor or outdoor patients ; a training school where obstetrical nursing in all its branches may be taught and certificates of efficiency granted. In connection with the Sydney hospitals there is a "Hospital Saturday Fund," the association for the control of which is registered under the Joint Stock Companies' Acts, not for profit, but to give legal status and increase public confidence in the conduct of business. The total income for 1895-6 was £3,969, an increase of £421 on 1894-5. Both indoor and outdoor collections are made, the former taking place throughout the year and the latter once. The necessary expenditure amounted to £215. All duties, with the exception of those of the assistant secretary, are performed by volunteers. The metropolitan friendly societies, fire brigades, and other bodies, as well as those of some of the suburban and country districts, organise Sunday processions in their respective localities each year for the purpose of parading the streets and collecting subscriptions from the public for the benefit of the local hospitals. The amounts thus collected in the metropolis during 1892, 1893, 1894, and 1895 were £202, £191, £264, and £208 respectively.

COST OF MEDICAL EDUCATION IN BERLIN.

WE take the following items from the *Medical Record*, translating the amounts into our own currency :—The estimated cost of a medical education in Berlin is 2,300 marks (about £115). The fee for matriculation is 18 marks ; for examination for the medical faculty, 242 marks (£12) ; diploma fee, 440 marks (£22) ; fees for all necessary lectures, &c., 800 to 1,200 marks (£60) ; cost of printing the dissertation, about 150 marks (£9 10s.) ; and the necessary books and instruments, 500 marks (£25). Then for board, lodging, and clothes, at least 7,600 to 8,000 marks (£400) must be added, and much more if one would live in ordinary comfort.

THE JUBILEE OF ANÆSTHETIC MIDWIFERY.

DR. SIMPSON in an interesting article on the Jubilee of Anæsthetic Midwifery (*The Glasgow Medical Journal*, March, 1897) gives the following narrative of the struggle for and against the use of anaesthetics in midwifery :—Dr. Montgomery, the then chief of the great Dublin school of midwifery, wrote during the session a letter to Edinburgh in which he said, "I do not believe that anyone in Dublin has as yet used ether in midwifery ; the feeling is very strong against its use in ordinary cases, and merely to avert the

ordinary amount of pain which the Almighty has seen fit—and most wisely we cannot doubt—to allot to natural labour, and in this feeling I heartily and entirely concur." Dr. Matthews Duncan (junior assistant to Professor Simpson) marked the following alternative reading, which well showed the absurdity of Dr. Montgomery's train of reasoning:—"I do not believe that anyone in Dublin has as yet used a carriage in locomotion; the feeling is very strong against its use in ordinary progression, and merely to avert the ordinary amount of fatigue which the Almighty has seen fit—and most wisely we cannot doubt—to allot to natural walking, and in this feeling I heartily and entirely concur!"

JAPANESE FEET.

M. MICHAUT, the anthropologist, who has been investigating the subject, finds that the Japanese have marvellous address in the use of their feet as means of prehension. These members possess extraordinary mobility; the first metatarsal bone is separated from the second by an interval which may measure from eighteen to twenty millimetres, and the ball of the great toe may be made to touch the two adjoining toes. The Japanese rest on their knees, the feet in forced extension lying on the dorsum, inclined inward and crossed one on the other, thus forming a little bench on which the pelvis rests. All the Annamites—the Cochinchinese, the Tonkinese and the Annamites properly so-called—also have a remarkable separation of the great toe, amounting to from three to five millimetres, and prehension also is possible. This can not be attributed to their footwear, as might be the case with the Japanese, since the Annamites either go barefoot or wear sandals; nor to adaptation to environment, because they are inhabitants of the plains. History tells us of the kingdom of Giao-Chil, or the people of the "bifurcated toes," who presented this ethnic peculiarity of widely separated great toes in its maximal degree, and examples are still met with—in some families the anomaly being hereditary and descending usually from father to son.—*Jour. Am. Med. Assoc.*

ALCOHOL AND GERMS.

DR. SIMS WOODHEAD says (*Medical Pioneer*, April, 1897):—"Recently there has been made a number of experiments as to the effect of alcohol on the multiplication in the bodies of animals of such organisms as the anthrax bacillus, and those that give rise to the formation of pus. These have been carried on in America, where the matter is treated on a purely scientific basis and more accurately than we in this country have been accustomed to deal

with it. The result was that the susceptibility of animals to pathogenic organisms was found to be increased. It is necessary for us applying the results of experiments to practical medicine to see how far this factor enters into the production of infectious disease in the human subject. It is notorious that the people who take cholera most easily are they who have taken alcohol, usually, of course, to excess. Dr. M'Leod, of Shanghai, in a most interesting series of observations has drawn special attention to this point. Beyond this, however, we have to take into account the action of alcohol physiologically and histologically. A long series of experiments has been made in Manchester, in which animals were dosed with increasing quantities of alcohol, and it was found that following its administration there was marked fatty degeneration of most of the organs, specially of the liver and kidneys, and as the result of the administration of even small quantities of alcohol."

GLYCERINE AS AN ABORTIFACIENT.

DR. P. L. FERRARI, of Florence, contributes to *Lo Sperimentale* a paper "upon the employment of glycerine to induce labour." After a review of recorded cases he concludes: that glycerine, injected into the cavity of the uterus, with the view of producing abortion or premature labour, does not act uniformly, either as to the time in which the pains begin, or as to the intensity or the duration of the uterine contractions; that the use of glycerine in this manner is dangerous, through changes produced in the blood and in the kidneys, and is contra-indicated when morbid conditions of these are known or suspected; that the glycerine may be injurious and even fatal to the foetus.

ETHER ANÆSTHESIA.

AN interesting discussion on this subject recently occupied the Paris *Société de Chirurgie*. M. Poncelet (of Lyon) spoke from an experience of 25,000 cases. He stated that published statistics showed that the accidents which follow anæsthesia by ether have always been less serious and less frequent than those resulting from chloroform. The Berlin figures gave an average of one death in 6,000 cases of administration of ether, one in 3,000 of chloroform. The experience of Swiss, American, French, and German surgeons, he said, proved the uncontested superiority of ether. There are certain contra-indications. Up to the age of 14 or 15 years chloroform is to be preferred, and in cases of catarrh or emphysema of aged patients. Again, he cautioned his audience against the use of ether at night, in a small room, on account of the inflammability of the vapour. M. Lucas-

Championnière admitted a weakness for chloroform ; mentioned the greater inconvenience of ether *to the operator*—which in his own case invariably caused two days' coughing. However, he concluded by acknowledging, “*avec tout le monde*,” that there is less risk in the use of ether, and that its elimination from the system is more rapid.

CRANIOTOMY IN MICROCEPHALUS.

DR. CARL BECK, of Chicago, in a lecture published in the *Journal of the American Medical Association*, discusses the results of operative treatment of microcephalus. They are not encouraging. He has collected 70 published cases, mostly from France, and America—Germany, Italy, and Spain contributing only one case each. He divides them into six categories, as follows:—Perfect and lasting improvement, 16 ; perfect improvement but stationary for some time after operation, 4 ; slight improvement, but good prospects, 1 ; no improvement, 1 ; condition worse than before, 11 ; results unknown or reported too early, 27.

CHOREA.

DR. W. B. PRITCHARD (*Medical News*, New York, LXIX., 9), analysing 125 cases of chorea, and comparing his results with those of other observers, comes to the following conclusions:—

1. Chorea is more common in females, in the proportion of two to one, than in males.
2. The disease is more prevalent in the spring months than at any other season of the year.
3. A neurotic heredity is of unquestionable importance as an aetiological factor.
4. The disease seems to be especially liable to development in the unusually intelligent and precocious. Mental deterioration or perversion occurs only as a result (as a rule) of relapses of the disease.
5. Chorea may occur independently of either heart disease or rheumatism, but the frequency with which the three are found to be present in association is more than a coincidence. Further study is necessary before any positive conclusion can be reached as to the exact significance of this relationship.

WEST LONDON MEDICAL JOURNAL.

WE have received the first number of this quarterly, published “under the auspices of the West London Medico-Chirurgical Society.” It promises well. We desire to notice specially a paper—“Remarks upon Gastric Ulceration”—by Dr. Donald W.

C. Hood, of the West London Hospital. "Perforating ulcer of the stomach," he says, "is as often met with among males as among females." "Gastric ulcer," he quotes from Dr. Pye Smith, "though no doubt common in young women, is also common among men of all ages." Of 191 cases examined *post mortem*, 59 were men, 42 women. Of 16 cases of peritonitis from perforating gastric ulcer, admitted to Guy's Hospital in twenty years (1870-90), the sexes were equally divided.

CREMATION IN THE UNITED STATES.

THE American Public Health Association appointed a committee to report on the disposal of the dead. The Report was read at the Denver meeting in October of last year. From it we learn that the first crematory in the United States was opened in Washington, Pennsylvania, in 1876. There are now nineteen crematories working—5 in New York, 4 in Pennsylvania, 3 in California, 1 each in Ohio, Michigan, Missouri, Maryland, Iowa, Illinois, and Massachusetts. 4,289 bodies had been cremated at the date of the Report. The cost ranges from £5 to £12.

BERLIN DRAINAGE.

CONCURRENTLY with the draining of Berlin the death-rate has fallen from 32·9 to 19·4 per 1,000 of the population, a rate that indicates that Berlin, of all the million-souled cities of the civilised world, in 1895 touched low water mark in respect of a sanitarily depleted mortality. Roughly computed this same low rate implies a gain in life-saving of between eight and nine thousand lives; or, in other words, had the rate of twenty years ago prevailed in 1895 a sacrifice of not less than 8,500 lives would have resulted over and above the actual death-toll. Or, again, if a human life be appraised as worth to the State the average sum of \$700, as the computation of some authorities is, Berlin was the gainer by not far from six millions of dollars in the year 1895.—*Journ. Am. Med. Assoc.*

MEDICAL JOURNALS IN U.S.

A NEWSPAPER catalogue recently published by an advertising house in this city (New York) contains some interesting points in relation to the medical journals published in North America. According to this most recent authority, the medical profession of this country supports, directly or indirectly, 275 periodicals, of which 10 are issued weekly, 11 semi-monthly, 225 monthly, 6 bi-monthly, and 23 quarterly, with a combined yearly circulation of 16,017,200 copies.—*Med. Rec.*

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

Palatinoids of Duodenin.

THIS preparation contains the excretion from the glandular system of the duodenum. It contains various enzymes that are similar to steapsin, trypsin, and amylopsin of the pancreas. It would apparently be of benefit in promoting the assimilation of proteid matter, farinaceous foods, and fats. Duodenin palatinoids have been prepared by Messrs. Oppenheimer, Son & Co., Manufacturing Chemists, of 14 Worship-street, London, E.C. They are dispensed in neat bottles. Each palatinoid contains 5 grains of the excretion from the duodenal glands.

"Ambrosia."

MESSRS. EVANS, GADD & CO., Fore-street, Exeter, have submitted to our notice a sample of a new preparation of cream and malt to which they have given the name "Ambrosia." Probably this appellation has been chosen, not so much to signify that the preparation is "food for the gods," as to convey that it is a "divine restorative"—a sense in which the word *ἀριστοῖα* is used by Homer in the Iliad (Book V., line 777).

"Ambrosia," we are told, contains 25 per cent. by weight of the richest Devonshire cream, combined with a malt extract of very high diastatic power. It can scarcely fail, therefore, to prove of great nutritive value. Its extreme palatability at the same time makes it especially suitable for such children and delicate persons as cannot tolerate cod-liver oil. "Ambrosia" may be obtained of nearly all chemists. It is put up in carefully stoppered bottles, the retail price of each of which is half-a-crown.

Ichthyol Palatinoids.

MESSRS. OPPENHEIMER, SON & CO., 14 Worship-street, London, E.C., have sent us a specimen of their ichthyol palatinoids. These have been suggested by a number of leading medical authorities, the drug being of such a disagreeable character as to excite repugnance with many of their patients, and they consider it a great advantage to be able to administer the ichthyol in the tasteless form of palatinoids. Many patients unable to swallow pills or to take mixtures of this otherwise nauseating drug, can swallow palatinoids with ease. Each palatinoid contains three grains of ichthyol (sulpho-ichthyolate of ammonium). The dose is one palatinoid as often as directed by the physician.

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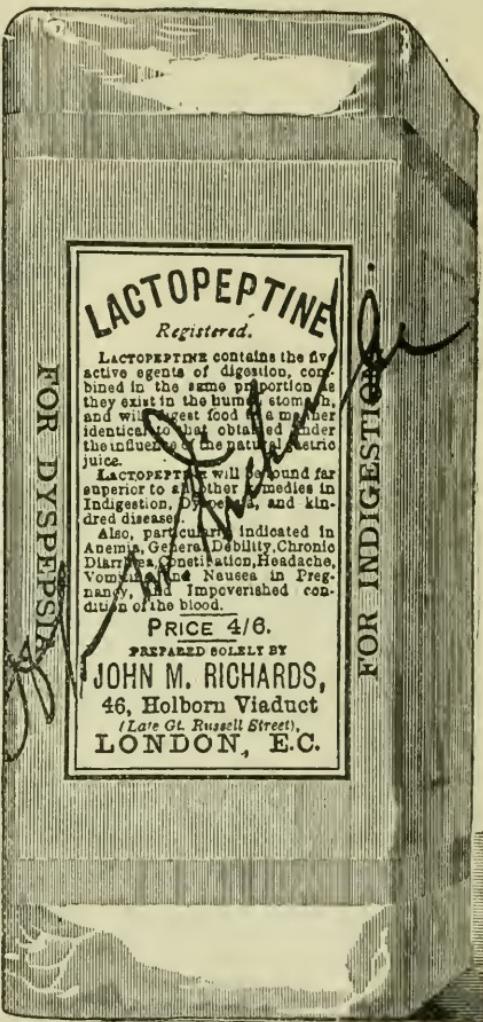
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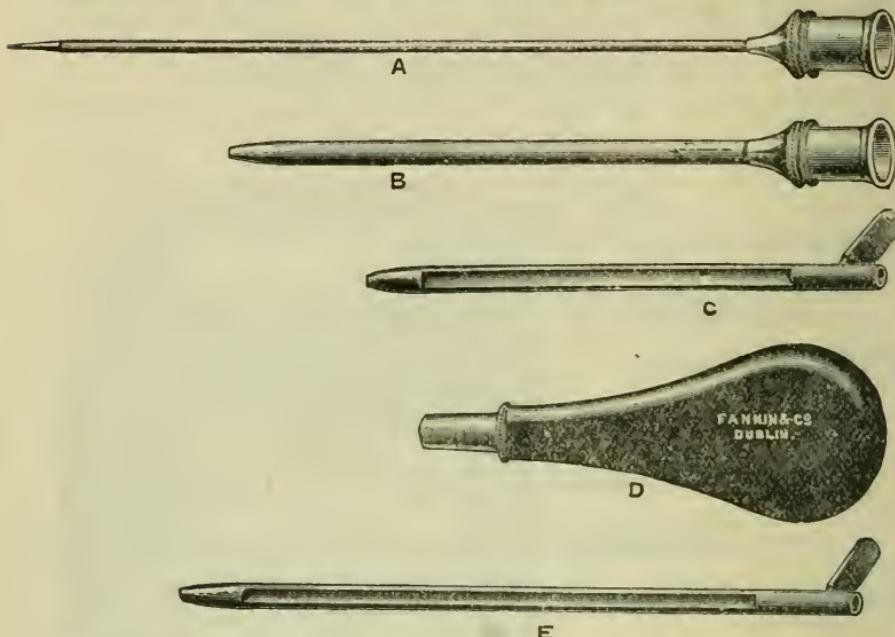


FIG. A represents an ordinary Aspirator Trocar. FIG. B, the Aspirator Cannula belonging to it
FIG. C. Cannula, with Director Groove made to fit accurately over A and B together.
FIG. D. The Handle. FIG. E. Director Cannula, fitting the Trocar A only.

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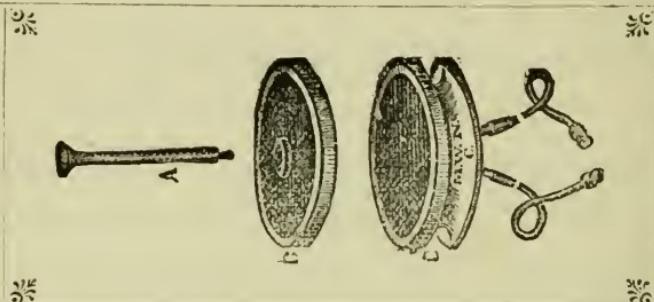
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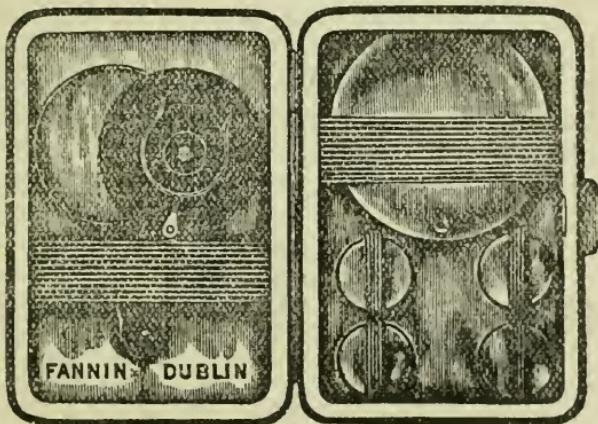
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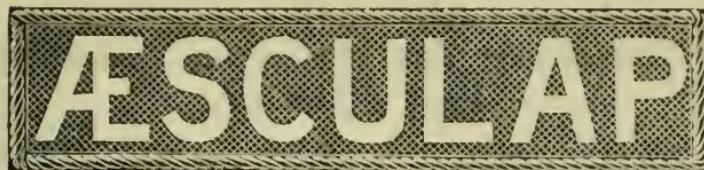
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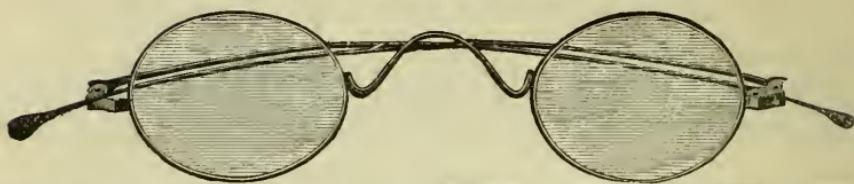
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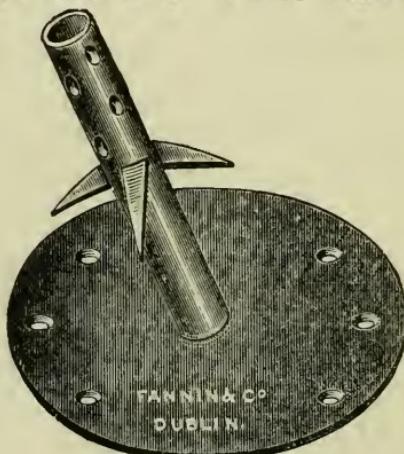
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The Countess of _____ writes:—"I really cannot resist telling you of the marvellous results of 'Benger's Food.' Not only am I quite renovated by a cupful every morning, but my daughter is taking it and finds great benefit."

"I consider that, humanly speaking, 'Benger's Food' entirely saved baby's life. I had tried four other well known foods, but he could digest nothing until we began the 'Benger.' He is now rosy and fattening rapidly."

"If every mother knew of its value no other would be used."

BENGER'S FOOD is sold in Tins at 1s. 6d., 2s. 6d., 5s., & 10s. each by Chemists, &c everywhere.

"APENTA"

IN THE TREATMENT OF OBESITY, AND ITS INFLUENCE ON CHANGE OF TISSUE.

*Observations in Professor Gerhardt's Clinic in the Charité Hospital,
Berlin.*

THE *Berliner Klinische Wochenschrift* of March 22, 1897, publishes a Report upon some experiments that have been made under the direction of Professor Gerhardt, in his clinic in the Charité Hospital at Berlin, demonstrating the value of **Apenta** Water in the treatment of obesity and its influence on change of tissue.

"Such experiments," it is observed, "could not be carried out until quite recently on account of the inconstant composition of the bitter waters coming into the market. In this respect the **Apenta** Water is favourably circumstanced," and it was chosen for these observations because of its constancy of composition.

The conclusion arrived at as to the value of **Apenta** in the treatment of obesity, and as to its influence on tissue-change was, that it "succeeded in producing a reduction of fat in the body without detriment to the existing albumen," and that "the general health of the patient suffered in no wise, and the cure ran its course in a satisfactory manner."

*A translation of the Report may be obtained on application to
THE APOLLINARIS CO., Ltd., 4 Stratford Place, London, W.*